DVD Player

DVP352X(K)

Service

Service

Service

DVP3520/55
DVP3522/55
DVP3520K/93

Service Manual

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**CLASS 1
LASER PRODUCT**

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PHILIPS

1. Technical Specifications, Directions for Use

Index of this chapter:

1.1 Technical Specifications
1.2 Directions for Use

Notes:

- Figures can deviate due to the different set executions.
- Specifications are indicative (subject to change).

1.1 Technical Specifications

For on-line product support please use the following website:
http://www.p4c.philips.com/cgi-bin/dcbint/cpproduct_selector.pl

Here is product information available, as well as getting started, user manuals, frequently asked questions and software & drivers.

1.2 Directions for Use

You can download this information from the following websites:
http://www.philips.com/support
http://www.p4c.philips.com

2. Safety Instructions, Warnings, Notes, and Abbreviation List

Index of this chapter:

2.1 Safety Instructions
2.2 Warnings
2.3 Notes
2.4 Abbreviation List

2.1 Safety Instructions

Safety regulations require the following **during** a repair:

- Connect the set to the Mains/AC Power via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol ⚠, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

Safety regulations require that **after** a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the Mains/AC Power lead for external damage.
- Check the strain relief of the Mains/AC Power cord for proper function.
- Check the electrical DC resistance between the Mains/AC Power plug and the secondary side (only for sets that have a Mains/AC Power isolated power supply):
  1. Unplug the Mains/AC Power cord and connect a wire between the two pins of the Mains/AC Power plug.
  2. Set the Mains/AC Power switch to the “on” position (keep the Mains/AC Power cord unplugged!).
  3. Measure the resistance value between the pins of the Mains/AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 MΩ and 12 MΩ.
  4. Switch “off” the set, and remove the wire between the two pins of the Mains/AC Power plug.
- Check the cabinet for defects, to prevent touching of any inner parts by the customer.

2.2 Warnings

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched “on”.
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

2.3 Notes

2.3.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground (⏚), or hot ground (⏚), depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).
- Where necessary, measure the waveforms and voltages with (⊓) and without (⊼) aerial signal. Measure the voltages in the power supply section both in normal operation (⏻) and in stand-by (⏻). These values are indicated by means of the appropriate symbols.

2.3.2 Schematic Notes

- All resistor values are in ohms, and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kΩ).
- Resistor values with no multiplier may be indicated with either an “E” or an “R” (e.g. 220E or 220R indicates 220 Ω).
- All capacitor values are given in micro-farads ($\mu = \times 10^{-6}$), nano-farads ($n = \times 10^{-9}$), or pico-farads ($p = \times 10^{-12}$).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An “asterisk” (*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Spare Parts List. Therefore, always check this list when there is any doubt.

2.3.3 BGA (Ball Grid Array) ICs

Introduction

For more information on how to handle BGA devices, visit this URL: *www.atyourservice.ce.philips.com* (needs subscription, not available for all regions). After login, select “Magazine”, then go to “Repair downloads”. Here you will find Information on how to deal with BGA-ICs.

BGA Temperature Profiles

For BGA-ICs, you **must** use the correct temperature-profile, which is coupled to the 12NC. For an overview of these profiles, visit the website *www.atyourservice.ce.philips.com* (needs subscription, but is not available for all regions)
You will find this and more technical information within the “Magazine”, chapter “Repair downloads”.
For additional questions please contact your local repair help desk.

2.3.4 Lead-free Soldering

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free soldering tin Philips SAC305 with order code 0622 149 00106. If lead-free solder paste is required, please contact the manufacturer of your soldering equipment. In general, use of solder paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free soldering tin. The solder tool must be able:
  - To reach a solder-tip temperature of at least 400°C.
  - To stabilize the adjusted temperature at the solder-tip.
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature of around 360°C - 380°C is reached and stabilized at the solder joint. Heating time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C, otherwise wear-out of tips will increase drastically and flux-fluid will be destroyed. To avoid wear-out of tips, switch “off” unused equipment or reduce heat.
- Mix of lead-free soldering tin/parts with leaded soldering tin/parts is possible but PHILIPS recommends strongly **to avoid** mixed regimes. If this cannot be avoided, carefully clear the solder-joint from old tin and re-solder with new tin.

2.3.5 Alternative BOM identification

It should be noted that on the European Service website, "Alternative BOM" is referred to as "Design variant".

The **third digit** in the serial number (example: KX**2**B0835000001) indicates the number of the alternative B.O.M. (Bill Of Materials) that has been used for producing the specific AV set. In general, it is possible that the same AV model on the market is produced with e.g. two different types of display, coming from two different suppliers. This will then result in sets which have the same CTN (Commercial Type Number; e.g. MCM394/12) but which have a different B.O.M. number.

Also, it is possible that same model on the market is produced with two production centers, however their partslist is the same. In such case, no alternative B.O.M. will be created.

By looking at the third digit of the serial number, one can identify which B.O.M. is used for the set he is working with. If the third digit of the serial number contains the number "1" (example: KX**1**B033500001), then the set has been manufactured according to B.O.M. number 1. If the third digit is a "2" (example: KX**2**B0335000001), then the set has been produced according to B.O.M. no. 2. This is important for ordering the correct spare parts!
For the third digit, the numbers 1...9 and the characters A...Z can be used, so in total: 9 plus 26= 35 different B.O.M.s can be indicated by the third digit of the serial number.

Identification: The bottom line of a type plate gives a 14-digit serial number. Digits 1 and 2 refer to the production centre (e.g. LM is Arts), digit 3 refers to the B.O.M. code, digit 4 refers to the Service version change code, digits 5 and 6 refer to the production year, and digits 7 and 8 refer to production week (in example below it is 2008 week 50). The 6 last digits contain the serial number.

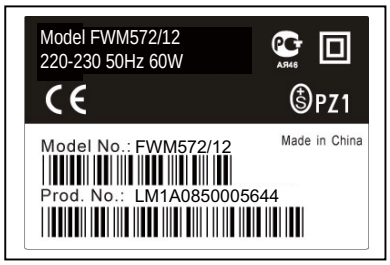


Figure 2-1 Serial number (example)

2.3.6 Module Level Repair (MLR) or Component Level Repair (CLR)

If a board is defective, consult your repair procedure to decide if the board has to be exchanged or if it should be repaired on component level.
If your repair procedure says the board should be exchanged completely, do not solder on the defective board. Otherwise, it cannot be returned to the O.E.M. supplier for back charging!

2.3.7 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages**. While some may not be dangerous in themselves, they can cause unexpected reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

2.4 Abbreviation List

0/6/12	SCART switch control signal on A/V board. 0 = loop through (AUX to TV), 6 = play 16 : 9 format, 12 = play 4 : 3 format
2DNR	Spatial (2D) Noise Reduction
3DNR	Temporal (3D) Noise Reduction
AARA	Automatic Aspect Ratio Adaptation: algorithm that adapts aspect ratio to remove horizontal black bars; keeps the original aspect ratio
ACI	Automatic Channel Installation: algorithm that installs TV channels directly from a cable network by means of a predefined TXT page
ADC	Analogue to Digital Converter
AFC	Automatic Frequency Control: control signal used to tune to the correct frequency
AGC	Automatic Gain Control: algorithm that controls the video input of the feature box
AM	Amplitude Modulation
ANR	Automatic Noise Reduction: one of the algorithms of Auto TV
AP	Asia Pacific
AR	Aspect Ratio: 4 by 3 or 16 by 9
ASF	Auto Screen Fit: algorithm that adapts aspect ratio to remove horizontal black bars without discarding video information
ATSC	Advanced Television Systems Committee, the digital TV standard in the USA
ATV	See Auto TV
Auto TV	A hardware and software control system that measures picture content, and adapts image parameters in a dynamic way
AV	External Audio Video
AVC	Audio Video Controller
AVIP	Audio Video Input Processor
B/G	Monochrome TV system. Sound carrier distance is 5.5 MHz
BLR	Board-Level Repair
BTSC	Broadcast Television Standard Committee. Multiplex FM stereo sound system, originating from the USA and used e.g. in LATAM and AP-NTSC countries
B-TXT	Blue TeleteXT
C	Centre channel (audio)
CEC	Consumer Electronics Control bus: remote control bus on HDMI connections
CL	Constant Level: audio output to connect with an external amplifier
CLR	Component Level Repair
COLUMBUS	COlor LUMinance Baseband Universal Sub-system
ComPair	Computer aided rePair
CP	Connected Planet / Copy Protection
CSM	Customer Service Mode
CTI	Color Transient Improvement: manipulates steepness of chroma transients
CVBS	Composite Video Blanking and Synchronization
DAC	Digital to Analogue Converter
DBE	Dynamic Bass Enhancement: extra low frequency amplification
DDC	See "E-DDC"

D/K	Monochrome TV system. Sound carrier distance is 6.5 MHz
DFI	Dynamic Frame Insertion
DFU	Directions For Use: owner's manual
DMR	Digital Media Reader: card reader
DMSD	Digital Multi Standard Decoding
DNM	Digital Natural Motion
DNR	Digital Noise Reduction: noise reduction feature of the set
DRAM	Dynamic RAM
DRM	Digital Rights Management
DSP	Digital Signal Processing
DST	Dealer Service Tool: special remote control designed for service technicians
DTCP	Digital Transmission Content Protection; A protocol for protecting digital audio/video content that is traversing a high speed serial bus, such as IEEE-1394
DVB-C	Digital Video Broadcast - Cable
DVB-T	Digital Video Broadcast - Terrestrial
DVD	Digital Versatile Disc
DVI(-d)	Digital Visual Interface (d= digital only)
E-DDC	Enhanced Display Data Channel (VESA standard for communication channel and display). Using E-DDC, the video source can read the EDID information form the display.
EDID	Extended Display Identification Data (VESA standard)
EEPROM	Electrically Erasable and Programmable Read Only Memory
EMI	Electro Magnetic Interference
EPLD	Erasable Programmable Logic Device
EU	Europe
EXT	EXTernal (source), entering the set by SCART or by cinches (jacks)
FBL	Fast BLanking: DC signal accompanying RGB signals
FDS	Full Dual Screen (same as FDW)
FDW	Full Dual Window (same as FDS)
FLASH	FLASH memory
FM	Field Memory or Frequency Modulation
FPGA	Field-Programmable Gate Array
FTV	Flat TeleVision
Gb/s	Giga bits per second
G-TXT	Green TeleteXT
H	H_sync to the module
HD	High Definition
HDD	Hard Disk Drive
HDCP	High-bandwidth Digital Content Protection: A “key” encoded into the HDMI/DVI signal that prevents video data piracy. If a source is HDCP coded and connected via HDMI/DVI without the proper HDCP decoding, the picture is put into a “snow vision” mode or changed to a low resolution. For normal content distribution the source and the display device must be enabled for HDCP “software key” decoding.
HDMI	High Definition Multimedia Interface
HP	HeadPhone
I	Monochrome TV system. Sound carrier distance is 6.0 MHz
I^2C	Inter IC bus
I^2D	Inter IC Data bus
I^2S	Inter IC Sound bus
IF	Intermediate Frequency
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in “pairs”, causing line flicker.
IR	Infra Red
IRQ	Interrupt Request
ITU-656	The ITU Radio communication Sector (ITU-R) is a standards body subcommittee of the International Telecommunication Union relating to radio communication. ITU-656 (a.k.a. SDI), is a digitized video format used for broadcast grade video. Uncompressed digital component or digital composite signals can be used. The SDI signal is self-synchronizing, uses 8 bit or 10 bit data words, and has a maximum data rate of 270 Mbit/s, with a minimum bandwidth of 135 MHz.
ITV	Institutional TeleVision; TV sets for hotels, hospitals etc.
JOP	Jaguar Output Processor
LS	Last Status; The settings last chosen by the customer and read and stored in RAM or in the NVM. They are called at start-up of the set to configure it according to the customer's preferences
LATAM	Latin America
LCD	Liquid Crystal Display
LED	Light Emitting Diode
L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I
LORE	LOcal REgression approximation noise reduction
LPL	LG.Philips LCD (supplier)
LS	Loudspeaker
LVDS	Low Voltage Differential Signalling
Mbps	Mega bits per second
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz
MIPS	Microprocessor without Interlocked Pipeline-Stages; A RISC-based microprocessor
MOP	Matrix Output Processor
MOSFET	Metal Oxide Silicon Field Effect Transistor, switching device
MPEG	Motion Pictures Experts Group
MPIF	Multi Platform InterFace
MUTE	MUTE Line
NC	Not Connected
NICAM	Near Instantaneous Compounded Audio Multiplexing. This is a digital sound system, mainly used in Europe.
NTC	Negative Temperature Coefficient, non-linear resistor
NTSC	National Television Standard Committee. Color system mainly used in North America and Japan. Color carrier NTSC M/N= 3.579545 MHz, NTSC 4.43= 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)
NVM	Non-Volatile Memory: IC containing TV related data such as alignments
O/C	Open Circuit
OSD	On Screen Display
OTC	On screen display Teletext and Control; also called Artistic (SAA5800)
P50	Project 50: communication protocol between TV and peripherals
PAL	Phase Alternating Line. Color system mainly used in West Europe (color carrier= 4.433619 MHz) and South America (color carrier PAL M=

	3.575612 MHz and PAL N= 3.582056 MHz)
PCB	Printed Circuit Board (same as “PWB”)
PCM	Pulse Code Modulation
PDP	Plasma Display Panel
PFC	Power Factor Corrector (or Pre-conditioner)
PIP	Picture In Picture
PLL	Phase Locked Loop. Used for e.g. FST tuning systems. The customer can give directly the desired frequency
POR	Power On Reset, signal to reset the uP
Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
PTC	Positive Temperature Coefficient, non-linear resistor
PWB	Printed Wiring Board (same as “PCB”)
PWM	Pulse Width Modulation
QRC	Quasi Resonant Converter
QTNR	Quality Temporal Noise Reduction
QVCP	Quality Video Composition Processor
RAM	Random Access Memory
RGB	Red, Green, and Blue. The primary color signals for TV. By mixing levels of R, G, and B, all colors (Y/C) are reproduced.
RC	Remote Control
RC5 / RC6	Signal protocol from the remote control receiver
RESET	RESET signal
ROM	Read Only Memory
R-TXT	Red TeleteXT
SAM	Service Alignment Mode
S/C	Short Circuit
SCART	Syndicat des Constructeurs d'Appareils Radiorécepteurs et Téléviseurs
SCL	Serial Clock I^2C
SCL-F	CLock Signal on Fast I^2C bus
SD	Standard Definition
SDA	Serial Data I^2C
SDA-F	DAta Signal on Fast I^2C bus
SDI	Serial Digital Interface, see “ITU-656”
SDRAM	Synchronous DRAM
SECAM	SEequence Couleur Avec Mémoire. Color system mainly used in France and East Europe. Color carriers= 4.406250 MHz and 4.250000 MHz
SIF	Sound Intermediate Frequency
SMPS	Switched Mode Power Supply
SoC	System on Chip
SOG	Sync On Green
SOPS	Self Oscillating Power Supply
S/PDIF	Sony Philips Digital InterFace
SRAM	Static RAM
SRP	Service Reference Protocol
SSB	Small Signal Board
STBY	STand-BY
SVGA	800x600 (4:3)
SVHS	Super Video Home System
SW	Software
SWAN	Spatial temporal Weighted Averaging Noise reduction
SXGA	1280x1024
TFT	Thin Film Transistor
THD	Total Harmonic Distortion
TMDS	Transmission Minimized Differential Signalling
TXT	TeleteXT
TXT-DW	Dual Window with TeleteXT
UI	User Interface
uP	Microprocessor
UXGA	1600x1200 (4:3)
V	V-sync to the module
VCR	Video Cassette Recorder
VESA	Video Electronics Standards Association
VGA	640x480 (4:3)
VL	Variable Level out: processed audio output toward external amplifier
VSB	Vestigial Side Band; modulation method
WYSIWYR	What You See Is What You Record: record selection that follows main picture and sound
WXGA	1280x768 (15:9)
XTAL	Quartz crystal
XGA	1024x768 (4:3)
Y	Luminance signal
Y/C	Luminance (Y) and Chrominance (C) signal
YPbPr	Component video. Luminance and scaled color difference signals (B-Y and R-Y)
YUV	Component video

Mechanical and Dismantling Instructions

Dismantling Instruction

Detailed information please refer to the model set.

The following guidelines show how to dismantle the player.
Step1: Remove 5 screws around the Top Cover, and then remove the Top Cover (Figure 1).

Figure 1

Step2: If it is necessary to dismantle Loader or Front Panel, the Front door should be removed first. (Figure 2)
Note: Make sure to operate gently otherwise the guider would be damaged.

Please kindly note that dismantle the front door assembly carefully to avoid damage tray and the front door.

Figure 2

Mechanical and Dismantling Instructions

Dismantling Instruction

Detailed information please refer to the model set.

Step3: If the tray can't open in normal way, you can make it through the instruction as below (Figure 3).
Note: Make sure to operate gently otherwise the guider would be damaged.

Figure 3

Step4: Dismantling Front Panel, disconnect the connectors (XS301), need release 4 snaps of Front Panel & 2 snaps of bottom cabinet , then gently pull the Panel out from the set. (Figure 4 - Figure 6)

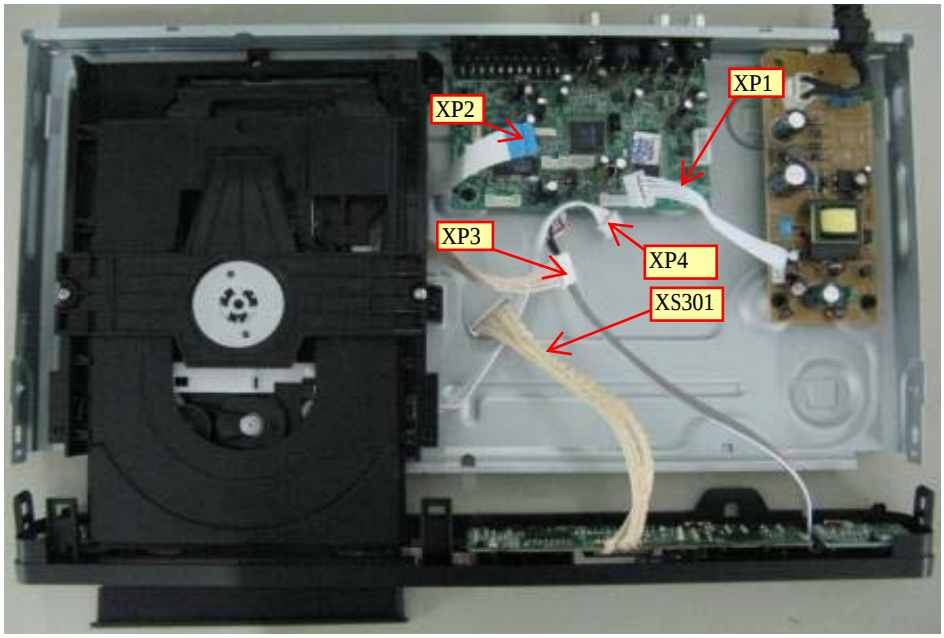


Figure 4

Mechanical and Dismantling Instructions

Dismantling Instruction

Detailed information please refer to the model set.

Step5: Dismantling Loader, disconnect the 3 connectors (XP2, XP3, XP4) aiming in the below figure, and remove 1 screw that connects the loader and the bottom cabinet. (Figure 5)

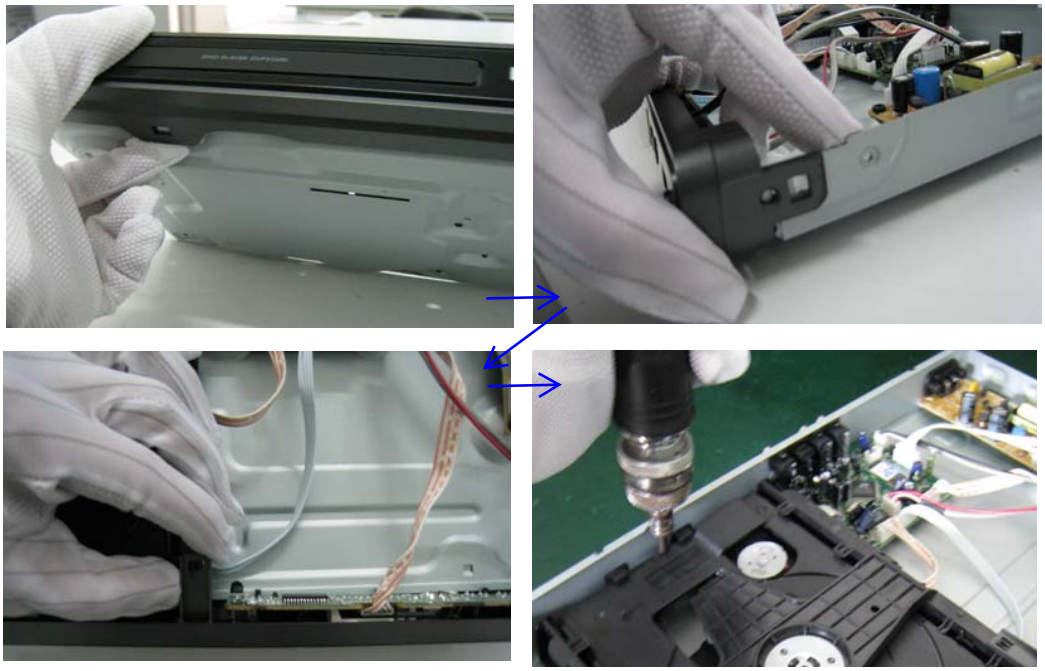


Figure 5

Step6: Dismantling Main Board, first disconnect the connector (XP1), and then remove 4 screws. (Figure 6)

Step7: Remove the 4 screws on Power Board to dismantle the Power Board. (Figure 6)

Figure 6

Softeware upgrade and region code change

Preparation to upgrade software

1) Power on the set and open the tray, then press "5""5" on remote control to check the SW File Name.
2) Start the CD Burning software and create a new CD project (Data Disc) with the following setting:
   Label: DVP3XXX (No need the label name)
   SW File Name: DVPXXXX_XX.bin
   Note: It is required to keep the SW file name accord.
3) Burn the data onto a blank CDR

A. Procedure for software upgrade:

A) Upgrade software via CDR:

1) Power on the set and insert the prepared Upgrade CDR.
2) The set will starts reading disc & response with the following display TV screen:
   Upgrade file detected
   Upgrade ?
   Press PLAY to start
3) Press "PLAY" button to confirm, then screen will display:

Upgrade file detected	Upgrade file detected
Do not power off	Do not power off
File Copying →	Upgrading

4) The upgraded tray will automatically open when file copying completed, then take out the disc.
5) About 1 minute later, the trace will automatically close when upgrading completed.

B) Upgrade software via USB Flash Drive (only for USB 2.0):

1) Create the correct software file onto the USB flash drive.
2) Power on the set and keep no disc, then insert it to the USB jack of the front panel.
3) When the DVD player switchs to the USB state automatically, pls follow the instructions on the TV screen to confrim the upgrade operation.

B. Read out the software versions to confirm upgrading

1) Power on the set and press "Setup" button on the remote control.
2) Press "1""3""7""9" button or press down cursor on remote control to select "Preferences" and press right & down cursor to select "Version Info".

The software version and other informations will be displayed on the TV screen as follows:

Version	XX.XX.XX.XX (Main version)
Sub-Ver	XX.XX.XX.XX (version of applicaton software)
8032	XX.XX.XX.XX
Servo	XX.XX.XX.XX (software version of Servo)
RISC	XX.XX.XX.XX
DSP	XX.XX.XX.XX
Region Code	X

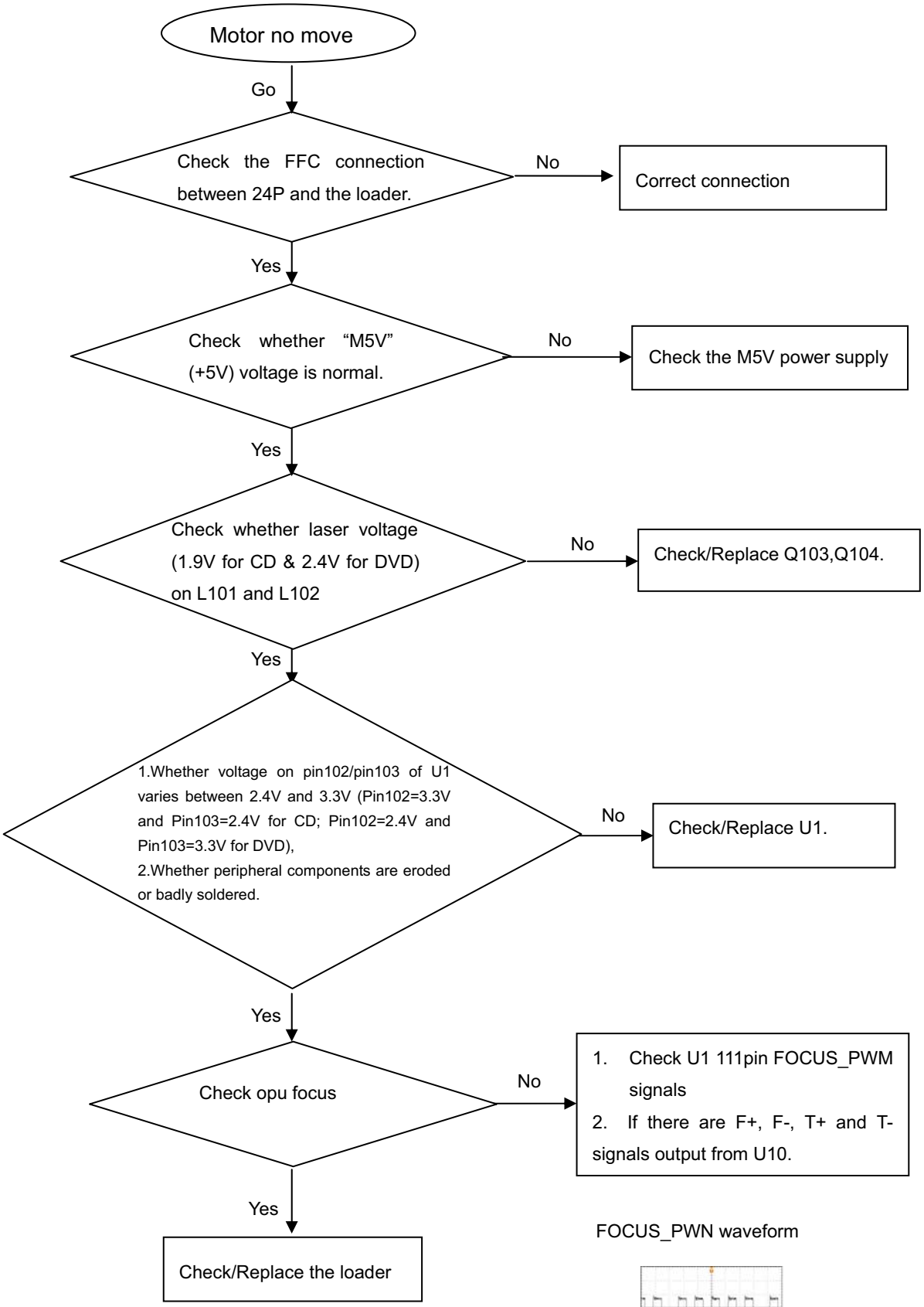
Caution: The set must not be power off during upgrading, Otherwise the Main board will be damaged entirely.

Region Code Change

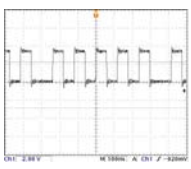
1) Power on the set and open the tray door;
2) Press the "Setup" button on the remote control, then the setup interface will be displayed on the TV screen;
3) Move the down cursor on remote control to select "Preferences" and press "1""3""8""9""3""1" on the remote control;
4) Then move the up or down cursor to select the region code.

Note: Restart after above steps.

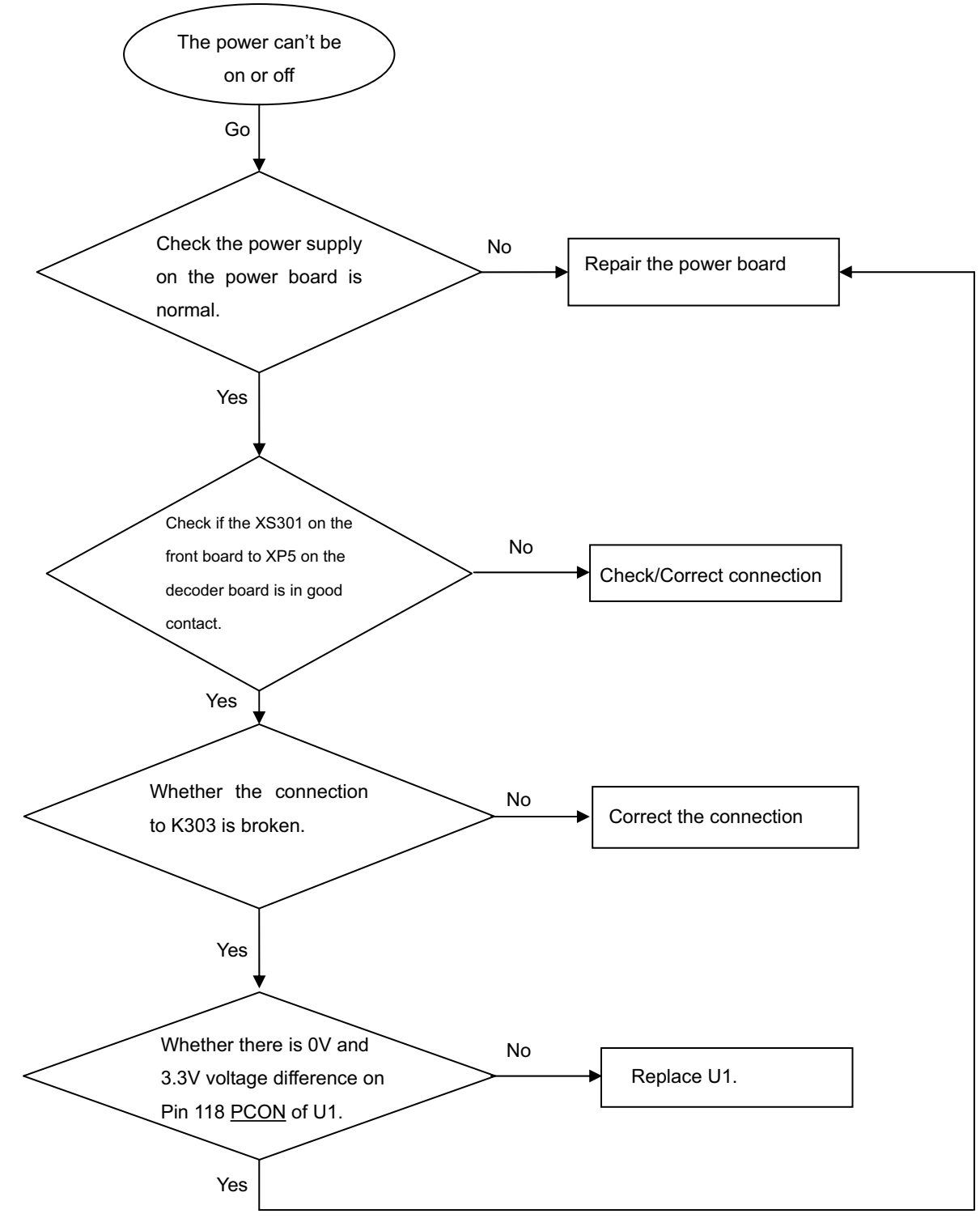
Spindle motor does not move


Motor no move
Go
Check the FFC connection between 24P and the loader.
No
Correct connection
Yes
Check whether "M5V" (+5V) voltage is normal.
No
Check the M5V power supply
Yes
Check whether laser voltage (1.9V for CD & 2.4V for DVD) on L101 and L102
No
Check/Replace Q103,Q104.
Yes
1.Whether voltage on pin102/pin103 of U1 varies between 2.4V and 3.3V (Pin102=3.3V and Pin103=2.4V for CD; Pin102=2.4V and Pin103=3.3V for DVD),
2.Whether peripheral components are eroded or badly soldered.
No
Check/Replace U1.
Yes
Check opu focus
No
1. Check U1 111pin FOCUS_PWM signals
2. If there are F+, F-, T+ and T- signals output from U10.
Yes
Check/Replace the loader

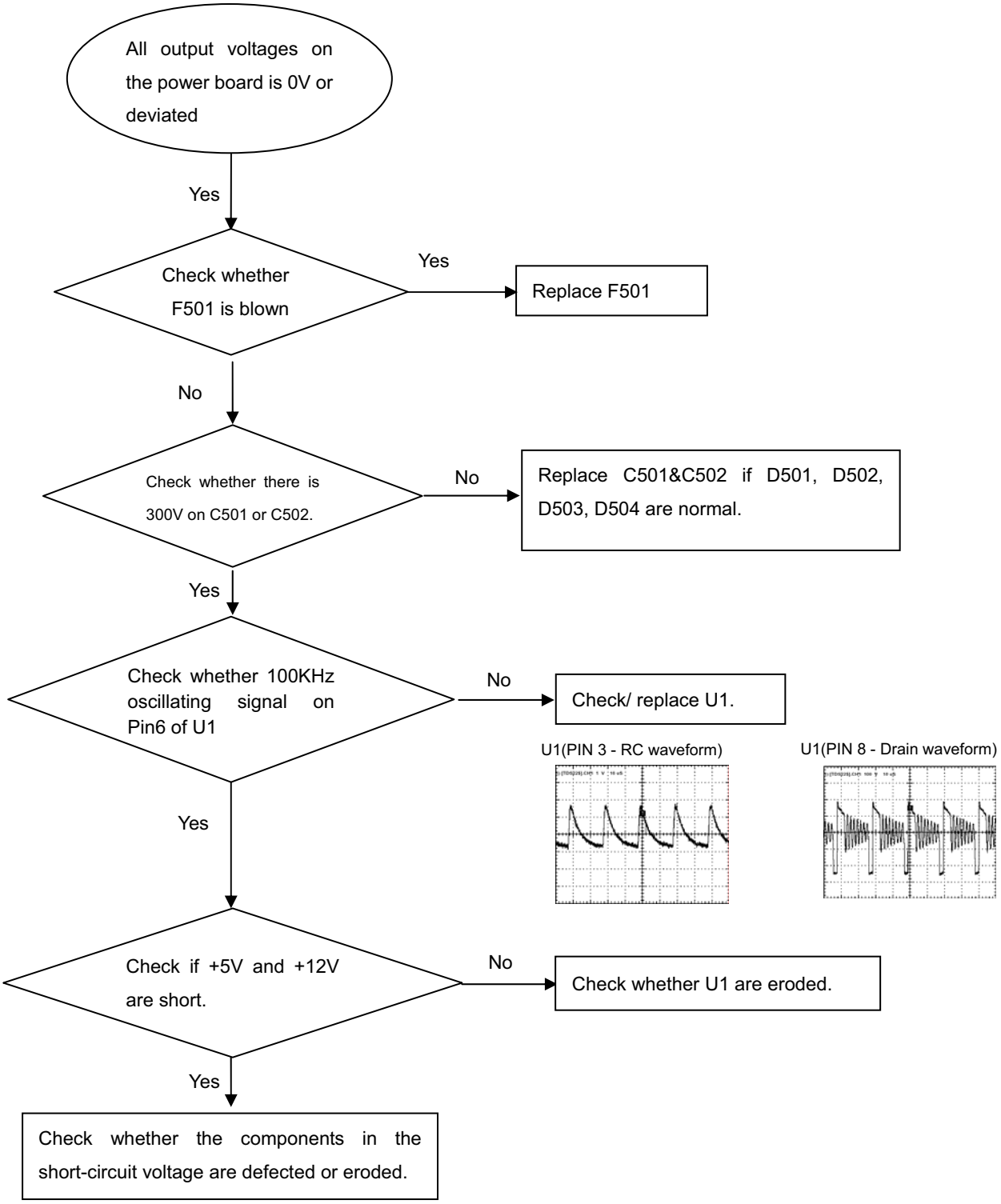
FOCUS_PWN waveform



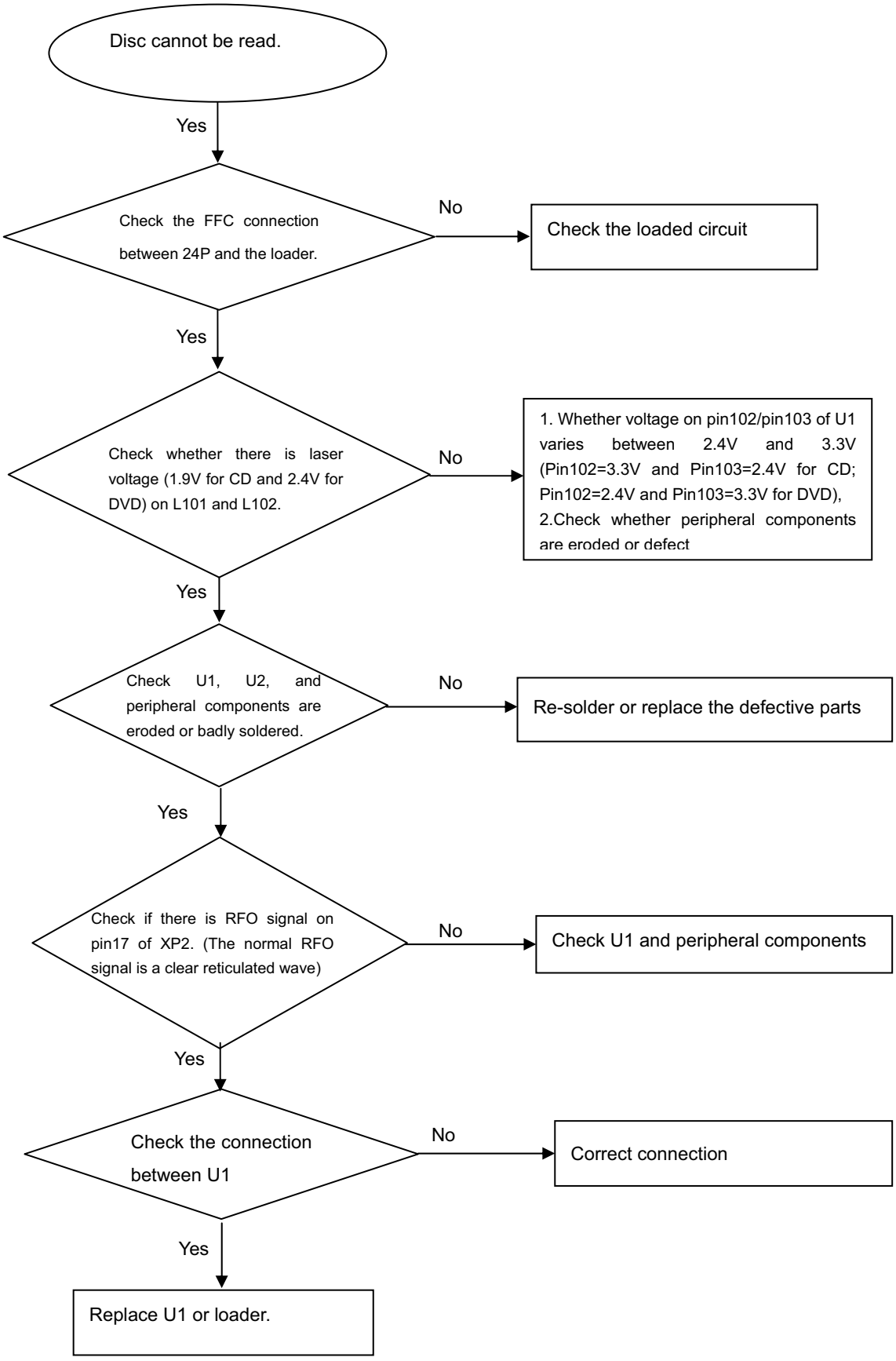
The power can not be on or off


The power can't be on or off
Go
Check the power supply on the power board is normal.
No
Repair the power board
Yes
Check if the XS301 on the front board to XP5 on the decoder board is in good contact.
No
Check/Correct connection
Yes
Whether the connection to K303 is broken.
No
Correct the connection
Yes
Whether there is 0V and 3.3V voltage difference on Pin 118 PCON of U1.
No
Replace U1.
Yes

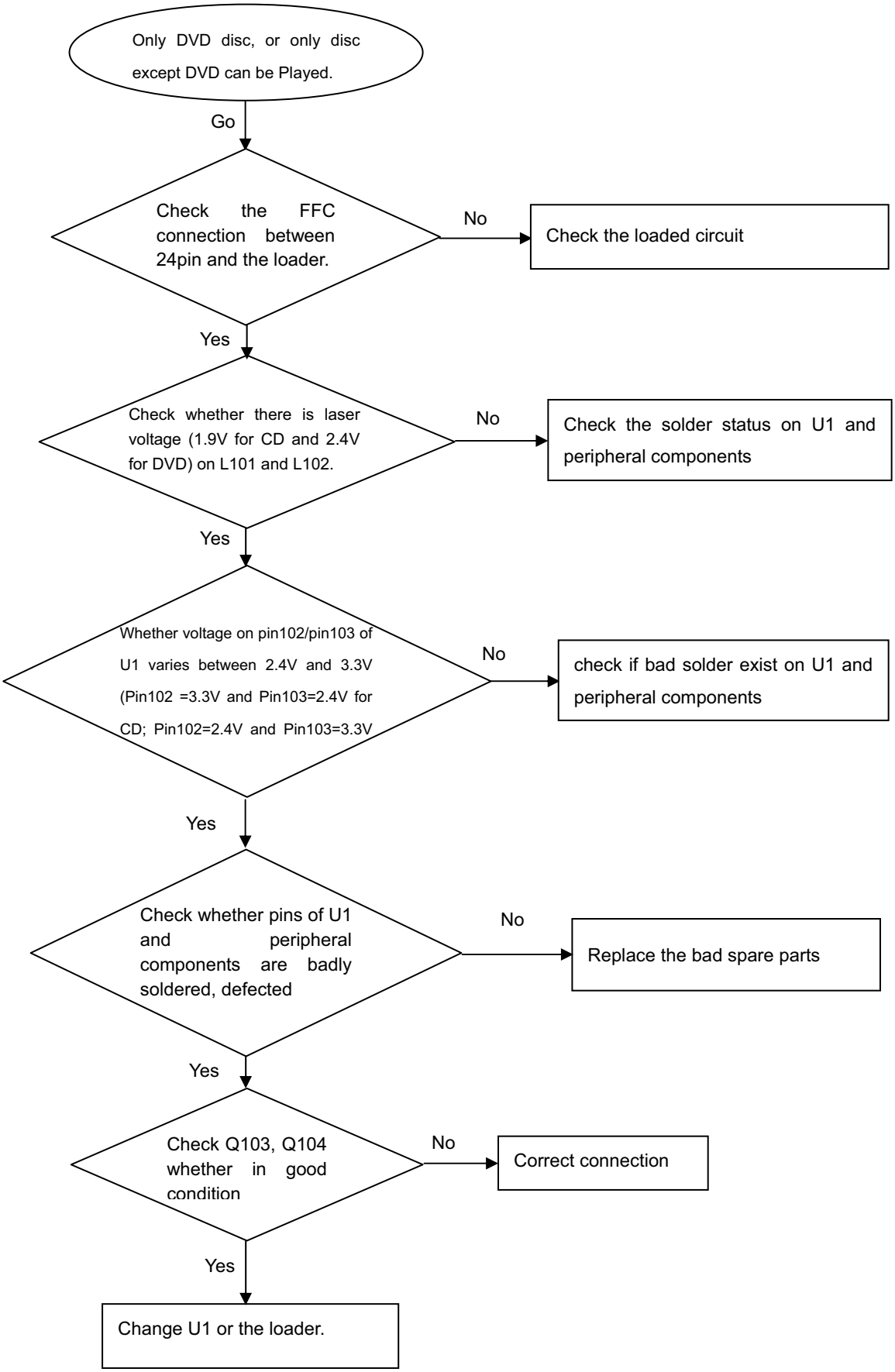
All output voltages on the power board is 0V or deviated.


All output voltages on the power board is 0V or deviated
Yes
Check whether F501 is blown
Yes
Replace F501
No
Check whether there is 300V on C501 or C502.
No
Replace C501&C502 if D501, D502, D503, D504 are normal.
Yes
Check whether 100KHz oscillating signal on Pin6 of U1
No
Check/ replace U1.
U1(PIN 3 - RC waveform)
U1(PIN 8 - Drain waveform)
Yes
Check if +5V and +12V are short.
No
Check whether U1 are eroded.
Yes
Check whether the components in the short-circuit voltage are defected or eroded.

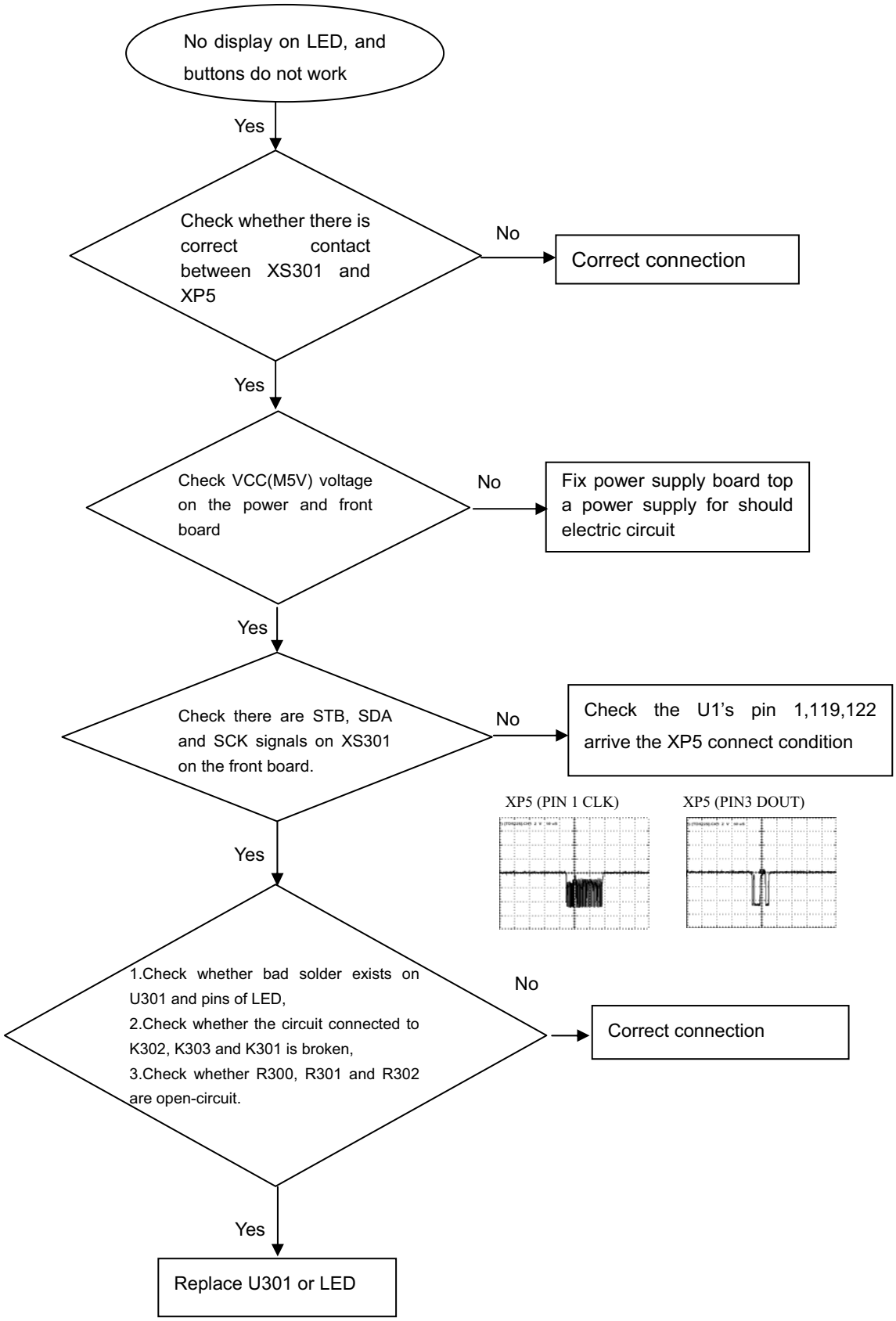
Disc cannot be read.


Disc cannot be read.
Yes
Check the FFC connection between 24P and the loader.
No
Check the loaded circuit
Yes
Check whether there is laser voltage (1.9V for CD and 2.4V for DVD) on L101 and L102.
No
1. Whether voltage on pin102/pin103 of U1 varies between 2.4V and 3.3V (Pin102=3.3V and Pin103=2.4V for CD; Pin102=2.4V and Pin103=3.3V for DVD),
2.Check whether peripheral components are eroded or defect
Yes
Check U1, U2, and peripheral components are eroded or badly soldered.
No
Re-solder or replace the defective parts
Yes
Check if there is RFO signal on pin17 of XP2. (The normal RFO signal is a clear reticulated wave)
No
Check U1 and peripheral components
Yes
Check the connection between U1
No
Correct connection
Yes
Replace U1 or loader.

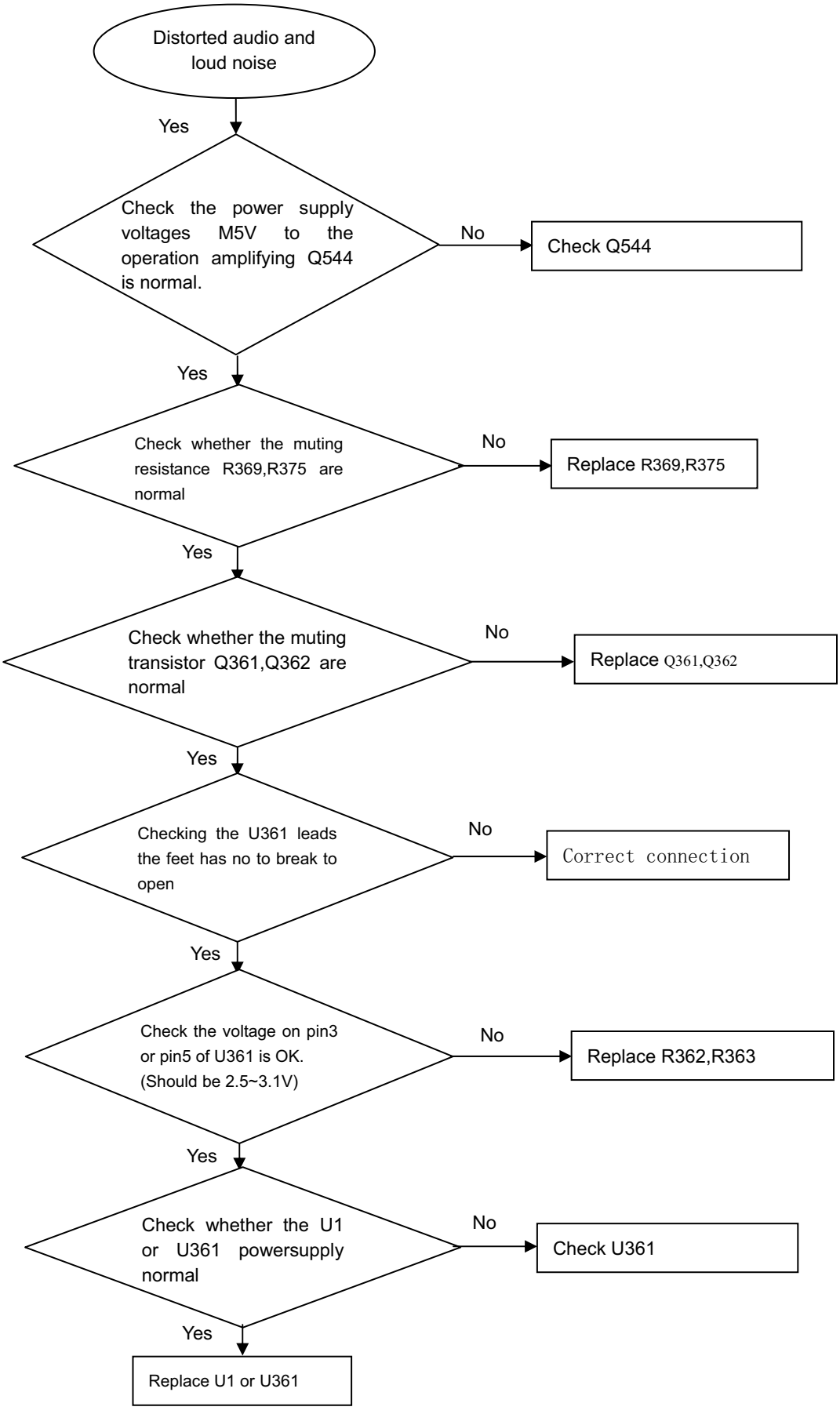
Only DVD disc or only disc except DVD can be played


Only DVD disc, or only disc except DVD can be Played.
Go
Check the FFC connection between 24pin and the loader.
No
Check the loaded circuit
Yes
Check whether there is laser voltage (1.9V for CD and 2.4V for DVD) on L101 and L102.
No
Check the solder status on U1 and peripheral components
Yes
Whether voltage on pin102/pin103 of U1 varies between 2.4V and 3.3V (Pin102 =3.3V and Pin103=2.4V for CD; Pin102=2.4V and Pin103=3.3V
No
check if bad solder exist on U1 and peripheral components
Yes
Check whether pins of U1 and peripheral components are badly soldered, defected
No
Replace the bad spare parts
Yes
Check Q103, Q104 whether in good condition
No
Correct connection
Yes
Change U1 or the loader.

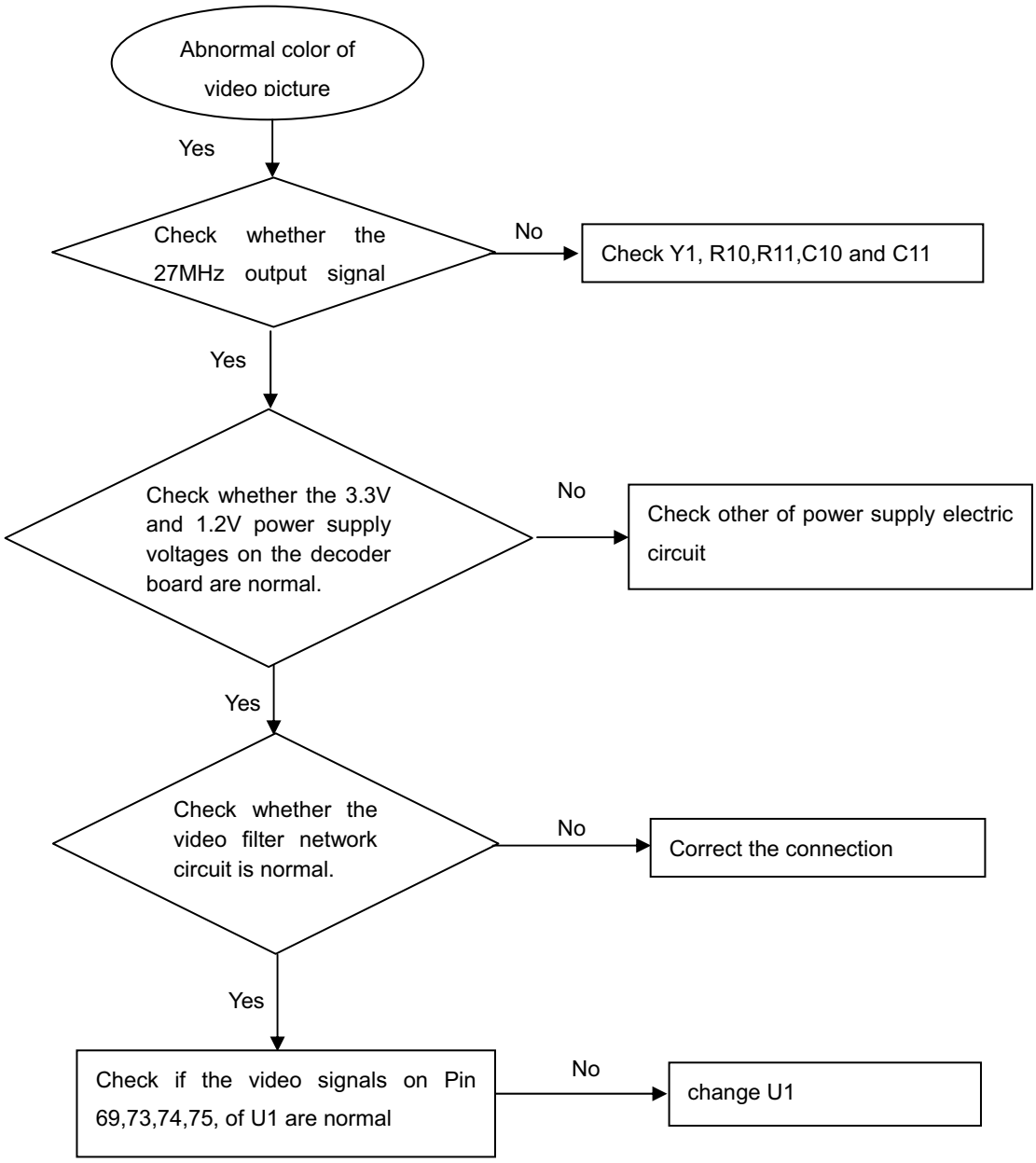
No display on LED, and buttons do not work


No display on LED, and buttons do not work
Yes
Check whether there is correct contact between XS301 and XP5
No
Correct connection
Yes
Check VCC(M5V) voltage on the power and front board
No
Fix power supply board top a power supply for should electric circuit
Yes
Check there are STB, SDA and SCK signals on XS301 on the front board.
No
Check the U1's pin 1,119,122 arrive the XP5 connect condition
XP5 (PIN 1 CLK)
XP5 (PIN3 DOUT)
Yes
1.Check whether bad solder exists on U301 and pins of LED,
2.Check whether the circuit connected to K302, K303 and K301 is broken,
3.Check whether R300, R301 and R302 are open-circuit.
No
Correct connection
Yes
Replace U301 or LED

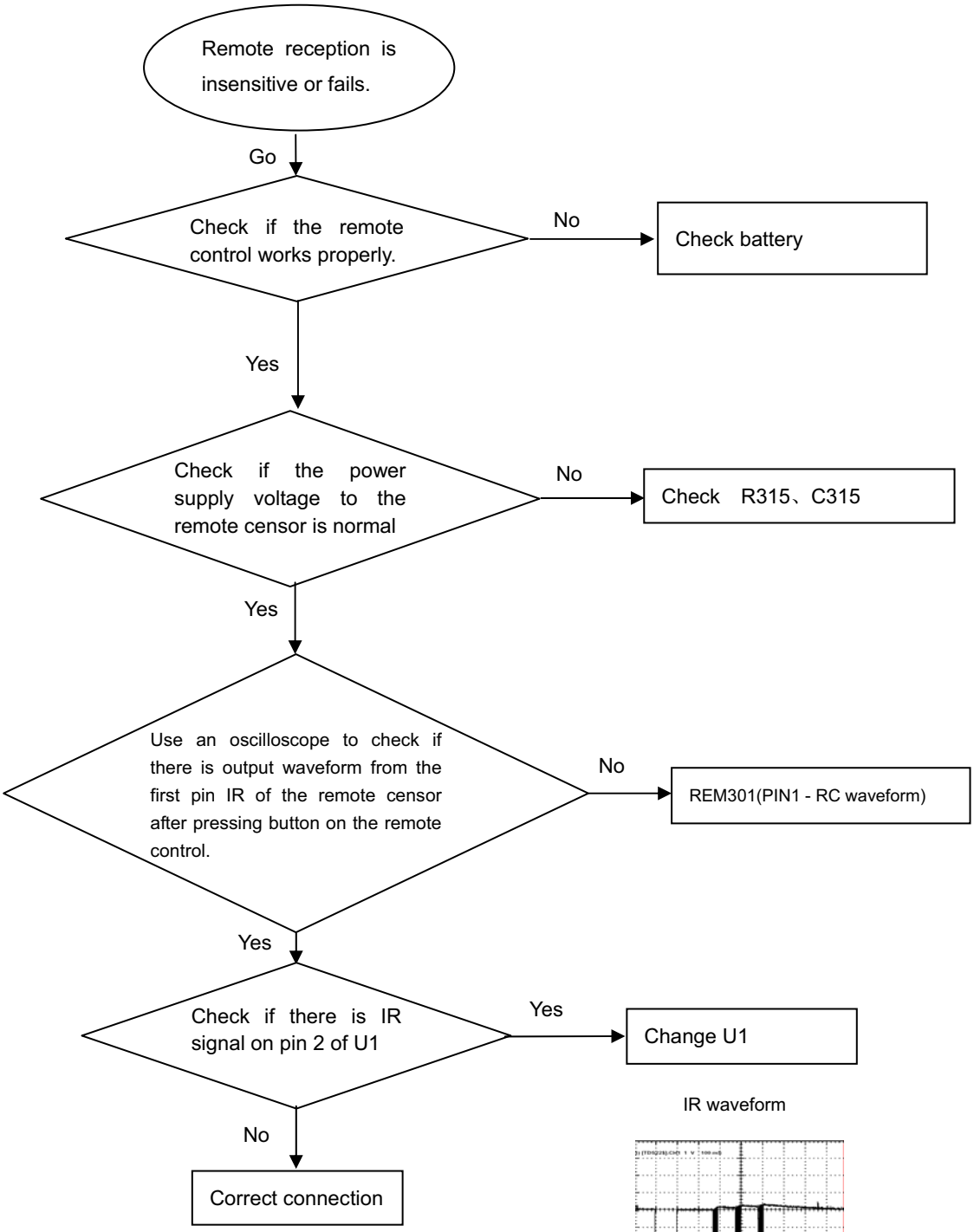
Distorted audio and loud noise



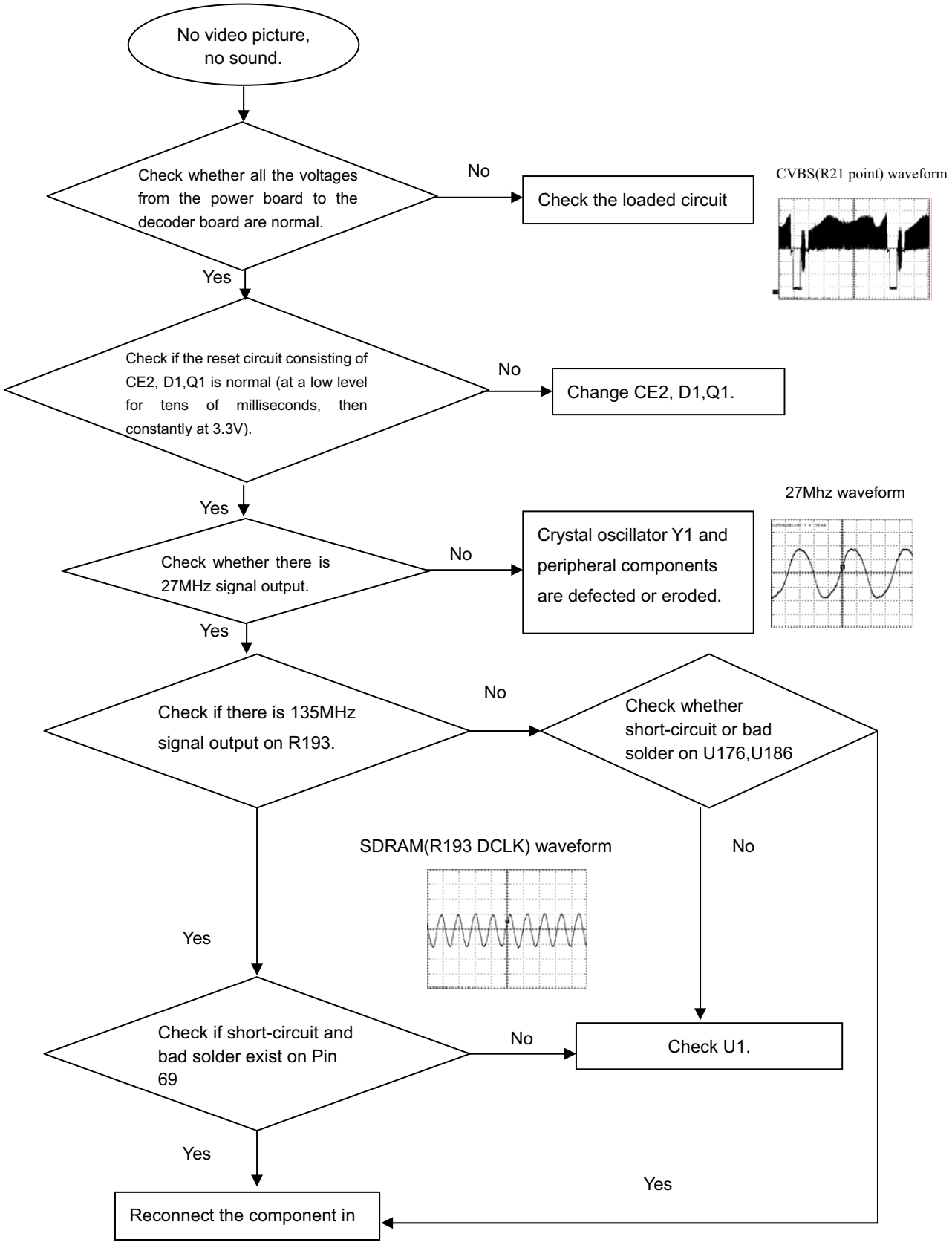
Abnormal color of video picture


Abnormal color of video picture
Yes
Check whether the 27MHz output signal
No
Check Y1, R10,R11,C10 and C11
Yes
Check whether the 3.3V and 1.2V power supply voltages on the decoder board are normal.
No
Check other of power supply electric circuit
Yes
Check whether the video filter network circuit is normal.
No
Correct the connection
Yes
Check if the video signals on Pin 69,73,74,75, of U1 are normal
No
change U1

Remote reception is insensitive or fails.

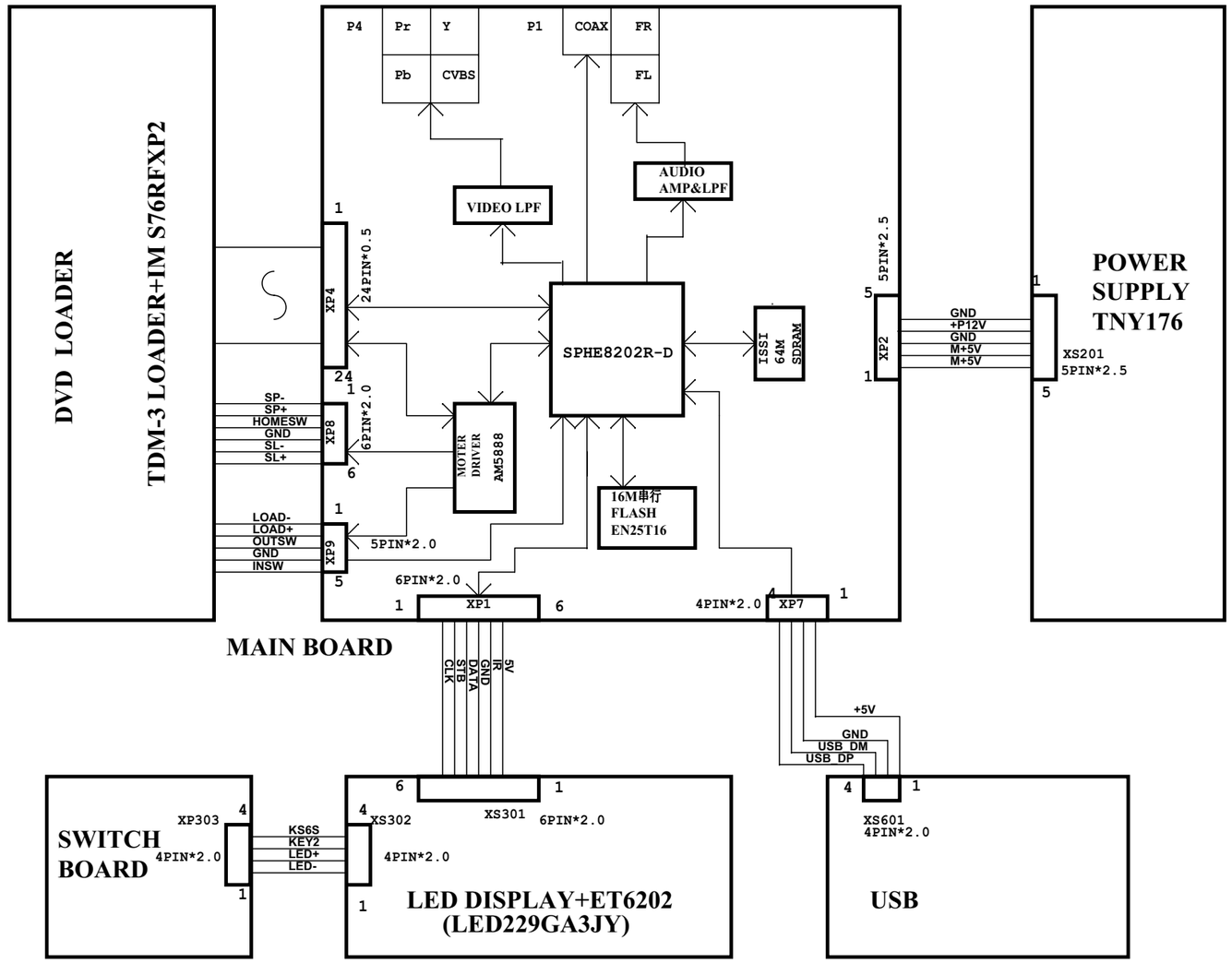

Remote reception is insensitive or fails.
Go
Check if the remote control works properly.
No
Check battery
Yes
Check if the power supply voltage to the remote censor is normal
No
Check R315、C315
Yes
Use an oscilloscope to check if there is output waveform from the first pin IR of the remote censor after pressing button on the remote control.
No
REM301(PIN1 - RC waveform)
Yes
Check if there is IR signal on pin 2 of U1
Yes
Change U1
No
Correct connection
IR waveform

No video picture, no sound.


No video picture, no sound.
Check whether all the voltages from the power board to the decoder board are normal.
No
Check the loaded circuit
CVBS(R21 point) waveform
Yes
Check if the reset circuit consisting of CE2, D1,Q1 is normal (at a low level for tens of milliseconds, then constantly at 3.3V).
No
Change CE2, D1,Q1.
Yes
27Mhz waveform
Check whether there is 27MHz signal output.
No
Crystal oscillator Y1 and peripheral components are defected or eroded.
Yes
Check if there is 135MHz signal output on R193.
No
Check whether short-circuit or bad solder on U176,U186
SDRAM(R193 DCLK) waveform
No
Yes
Check if short-circuit and bad solder exist on Pin 69
No
Check U1.
Yes
Yes
Reconnect the component in

5-1

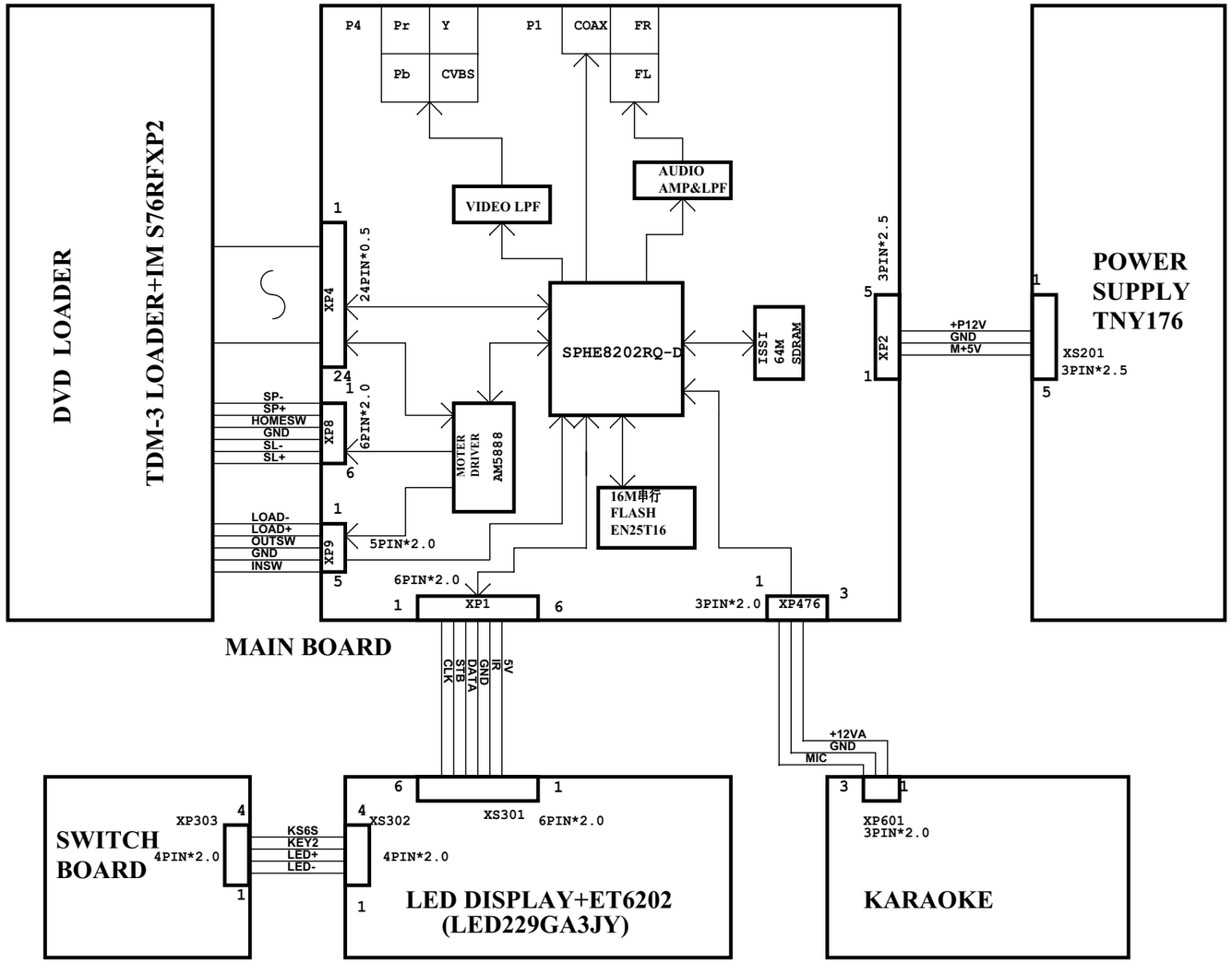
SPHE8202R-D(2ch) WIRING DIAGRAM



Remark: DVP3520 no USB output.

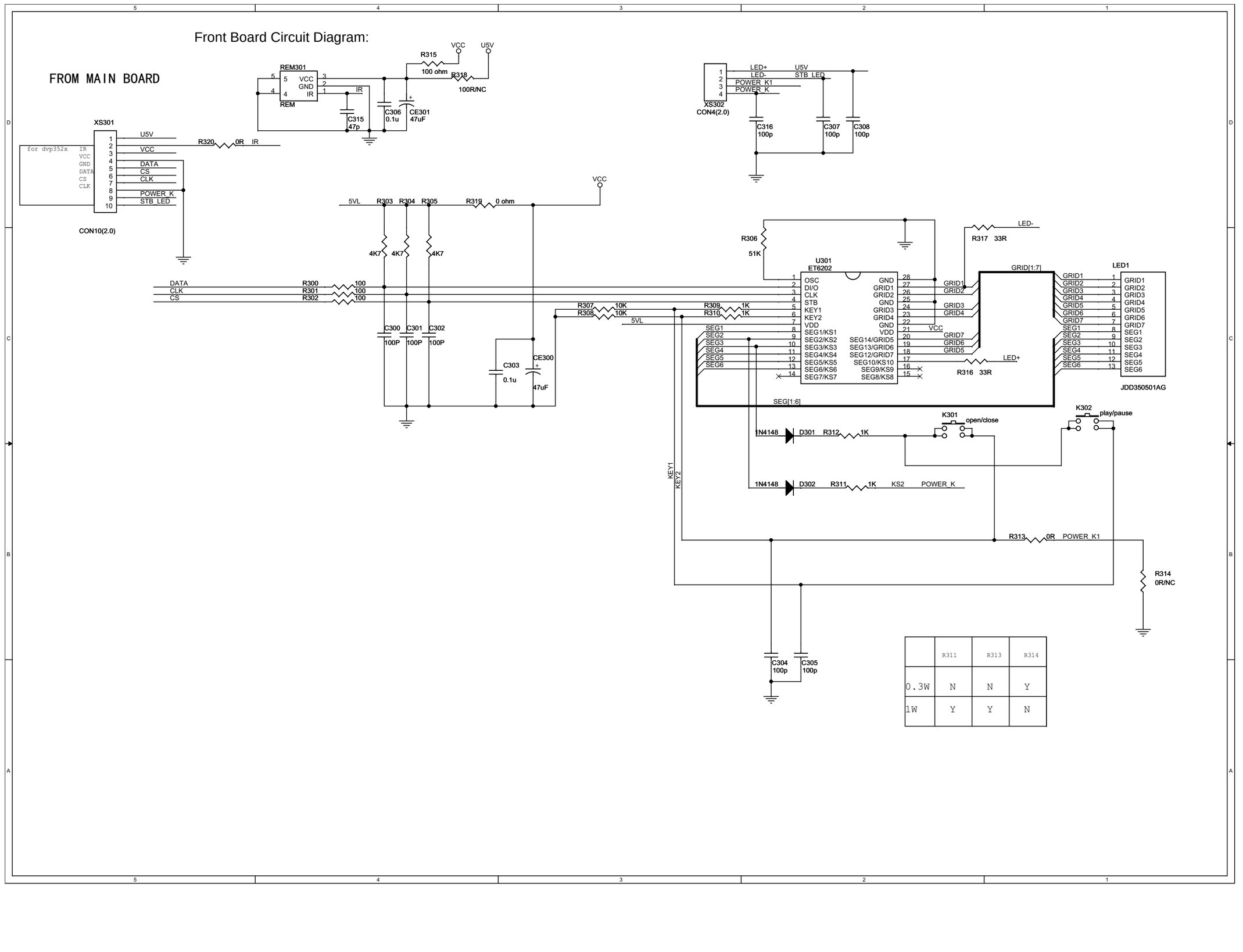
5-1

DVP3520K SPHE8202RQ-D(2ch) WIRING DIAGRAM



6-1

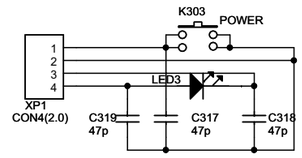
Front Board Circuit Diagram:



	R311	R313	R314
0.3W	N	N	Y
1W	Y	Y	N

6-2

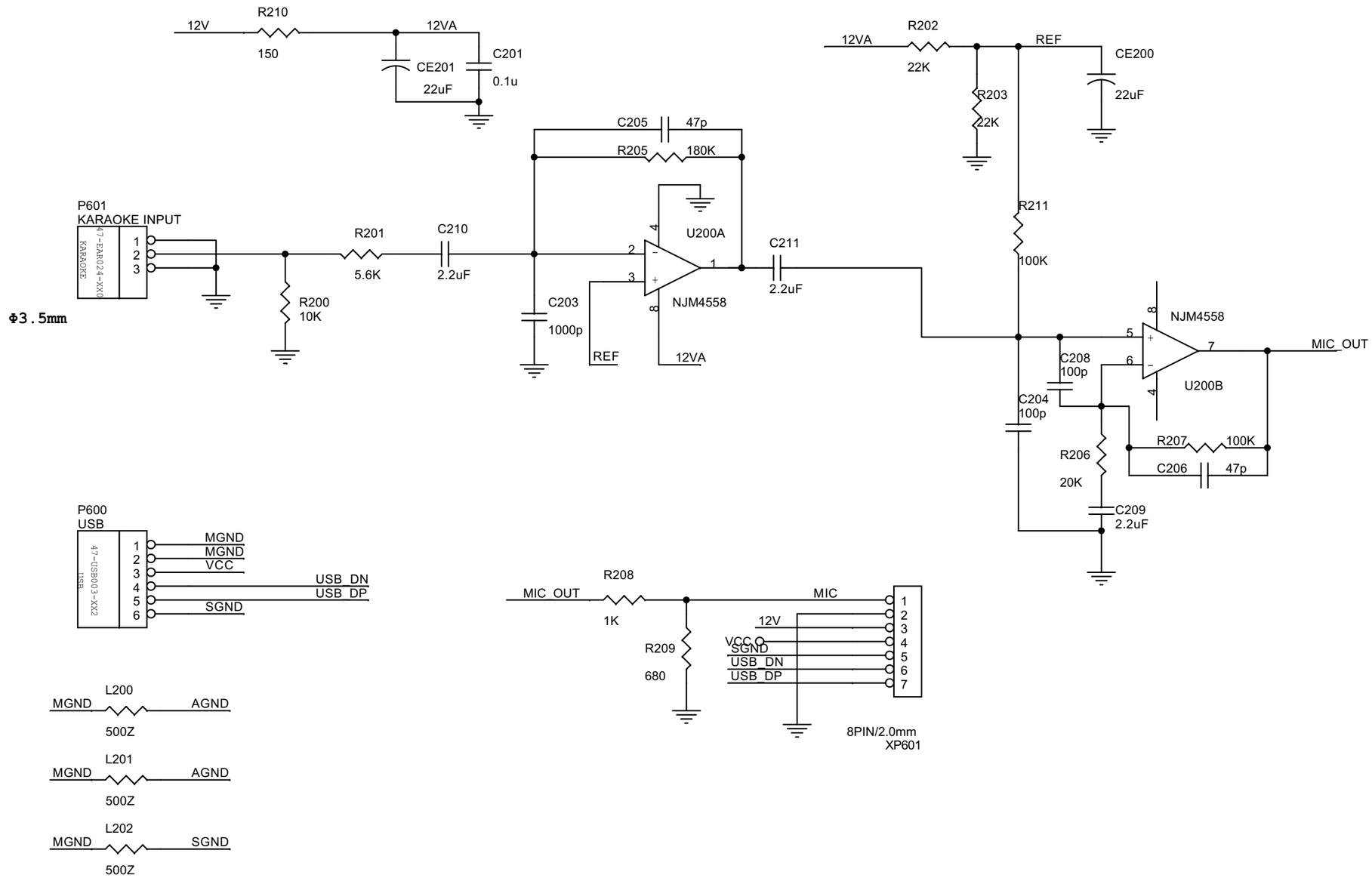
Switch Board Circuit Diagram:



SWITCH BOARD

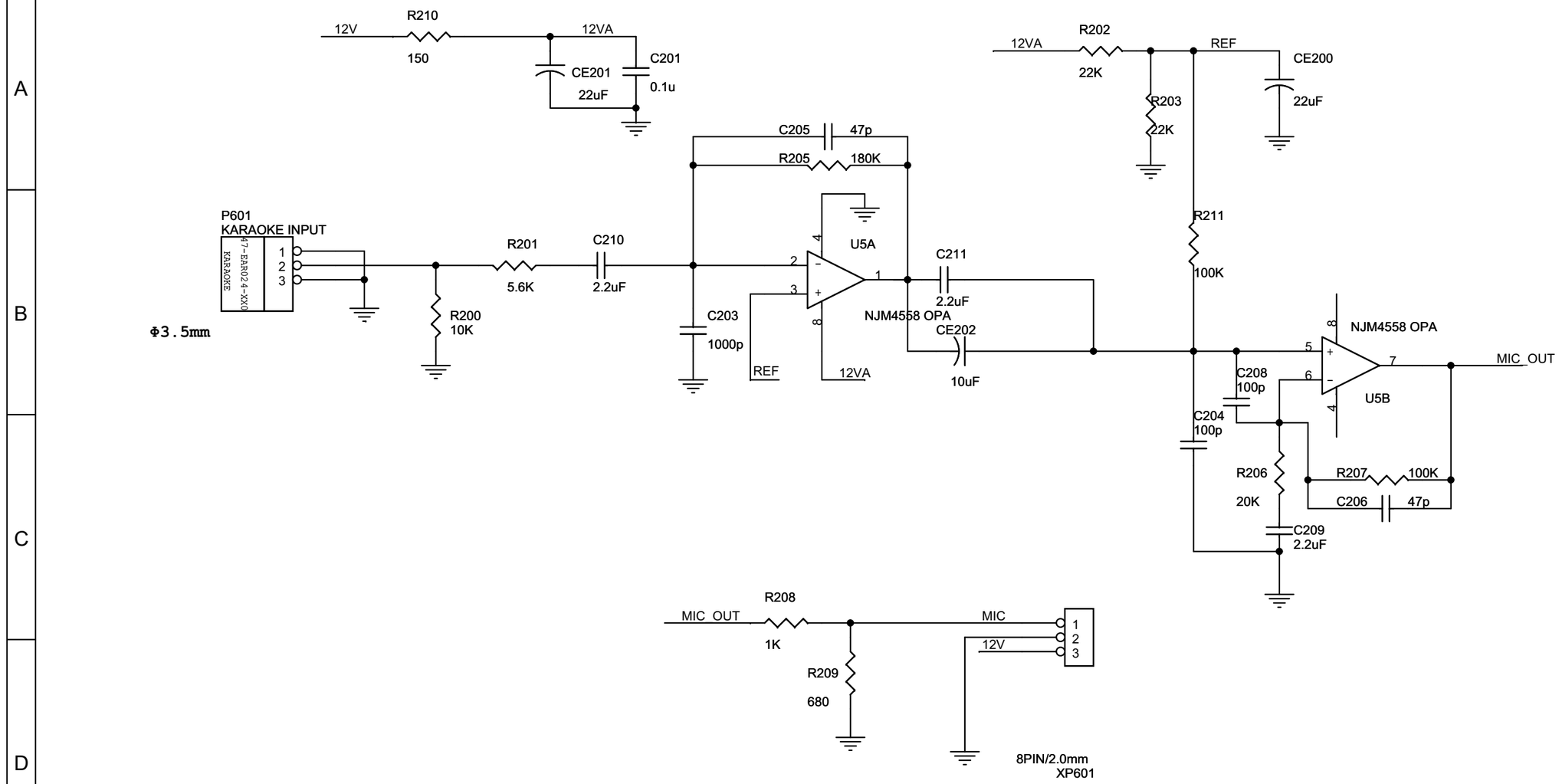
6-3

OK Board & USB Board Electric Diagram (Only for DVP3522 and has not karaoke output)



7-3

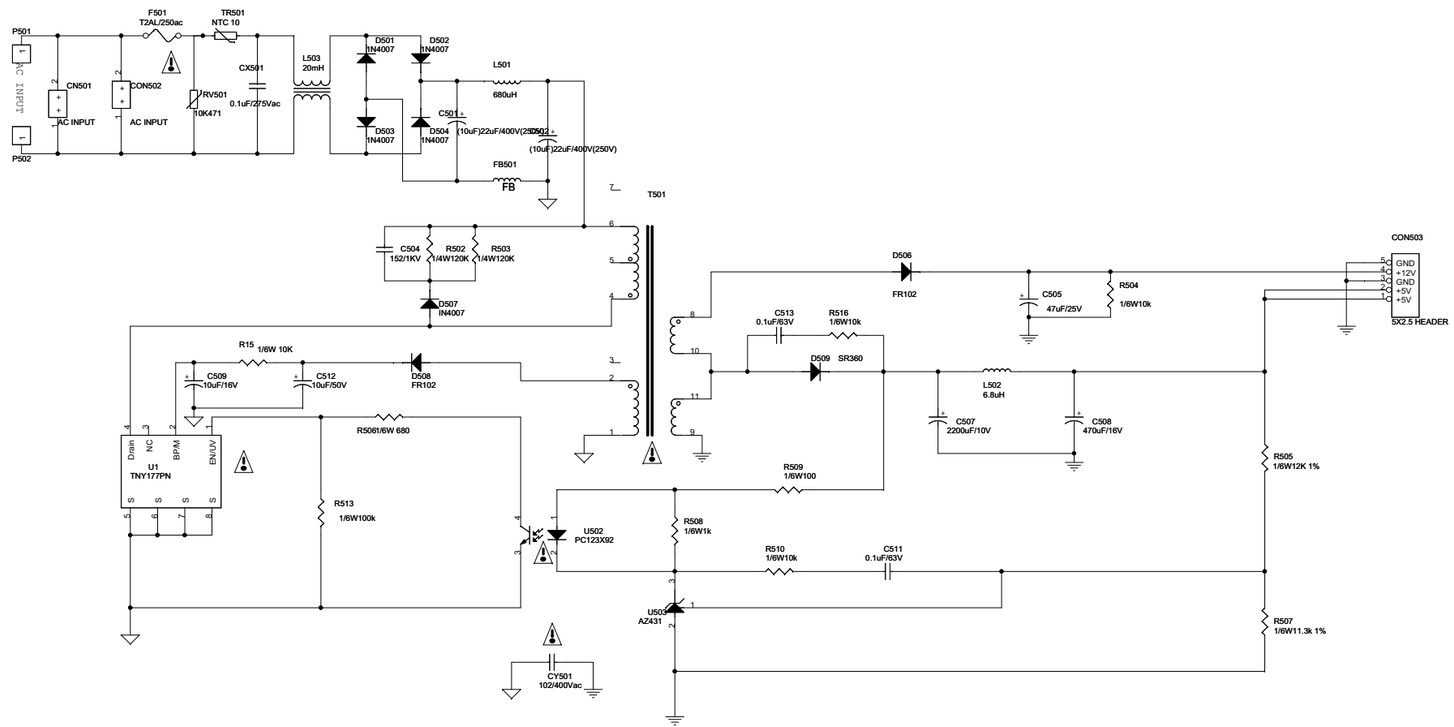
OK Board Circuit Diagram for DVP3520K/93:



6-4

Power Board Circuit Diagram:

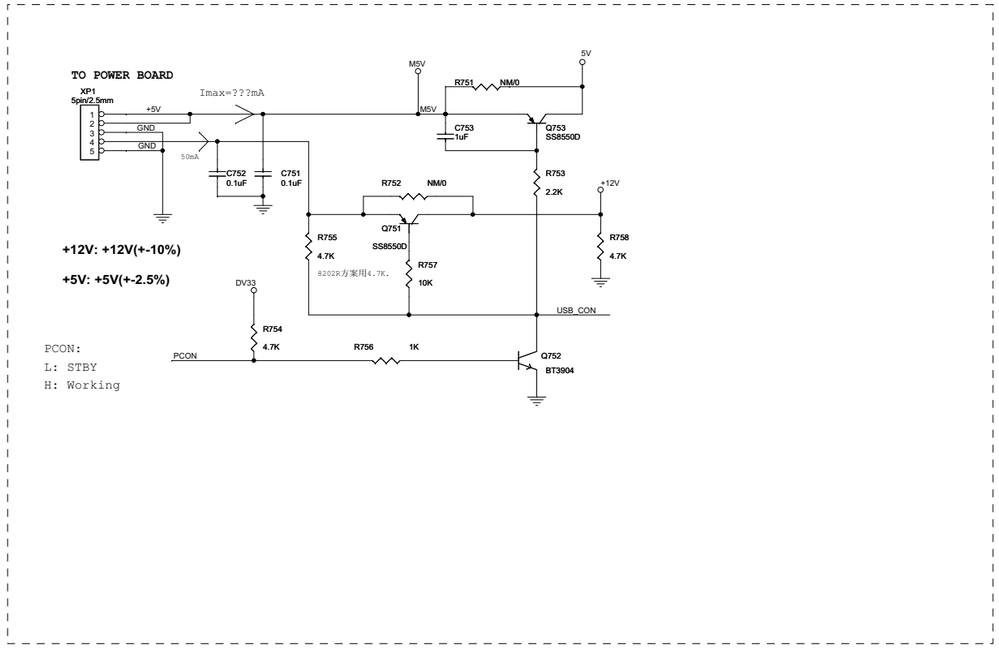
*** CAUTION :**
THE PARTS MARKED WITH ⚠ ARE IMPORTANT PARTS ON THE SAFETY.
PLEASE USE THE PARTS HAVING THE DESIGNATED PARTS NUMBER WITHOUT FAIL.

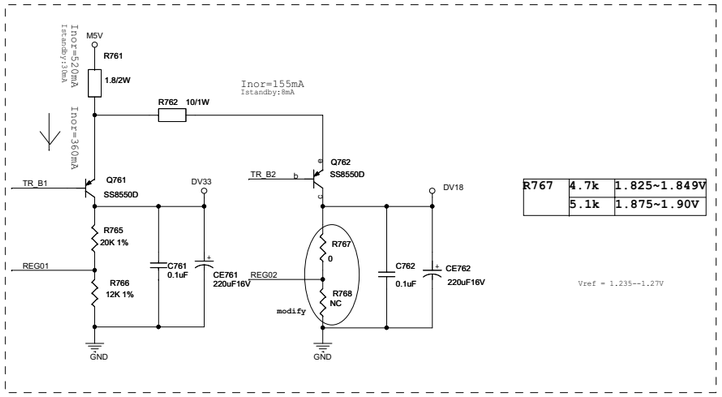


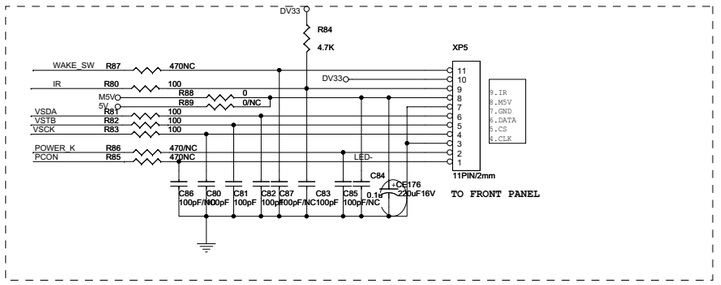
* No use the Class 1 environment management materials of SS-00259
* All of moulding resinous, ink, paint and coating electric wire must be ordered from designated GP supplier of Philips.

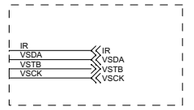
6-5

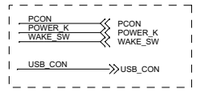
Main Board Circuit Diagram: POWER & MOTOR DRIVER

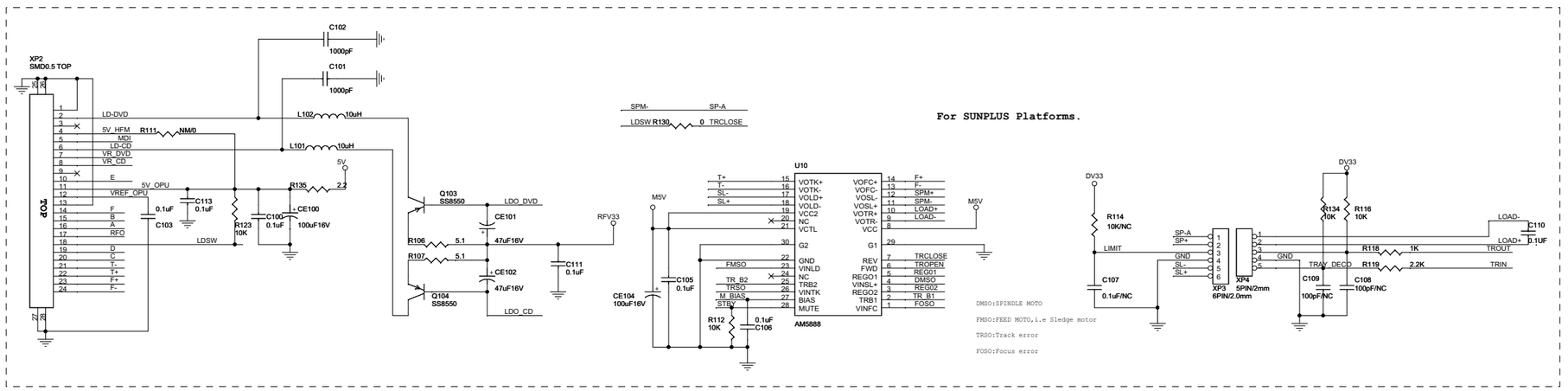


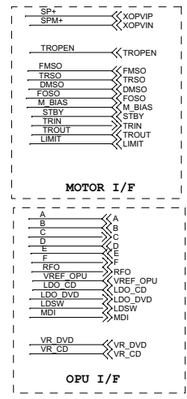






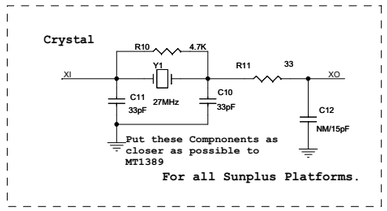


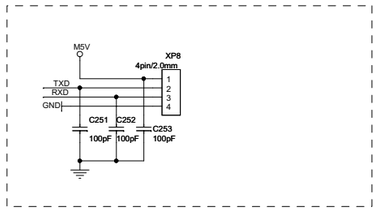


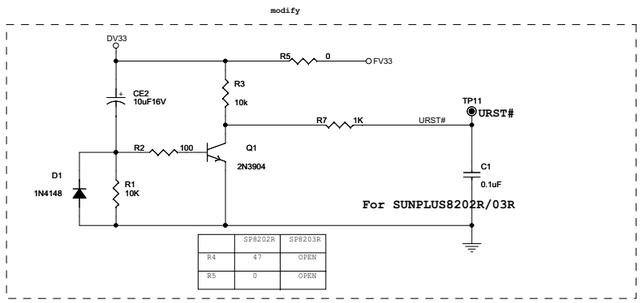


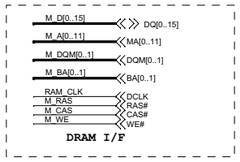
6-6

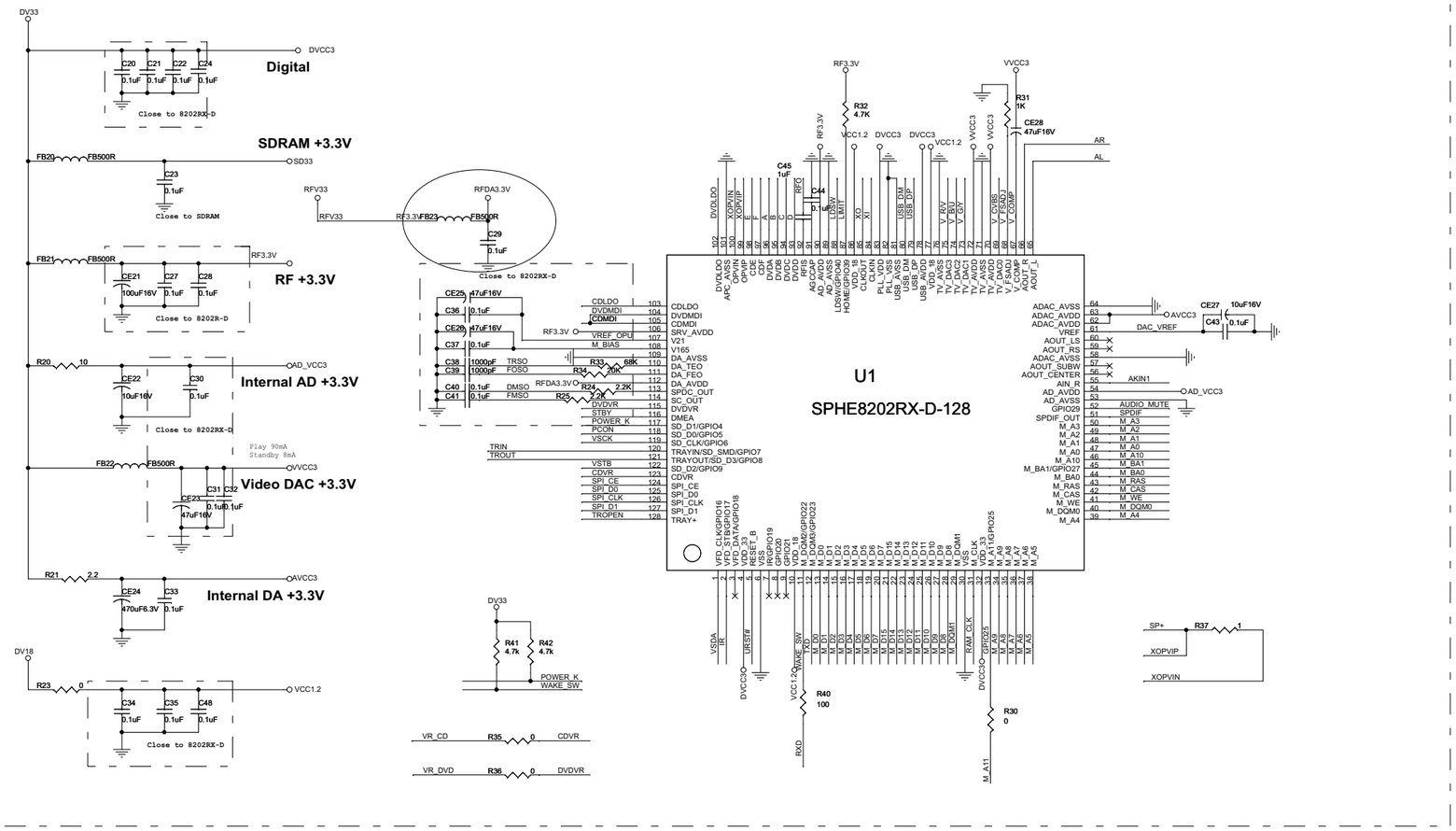
Main Board Circuit Diagram: SPHD8202R-D

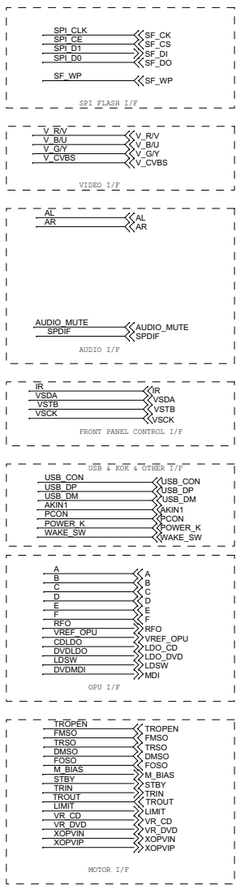






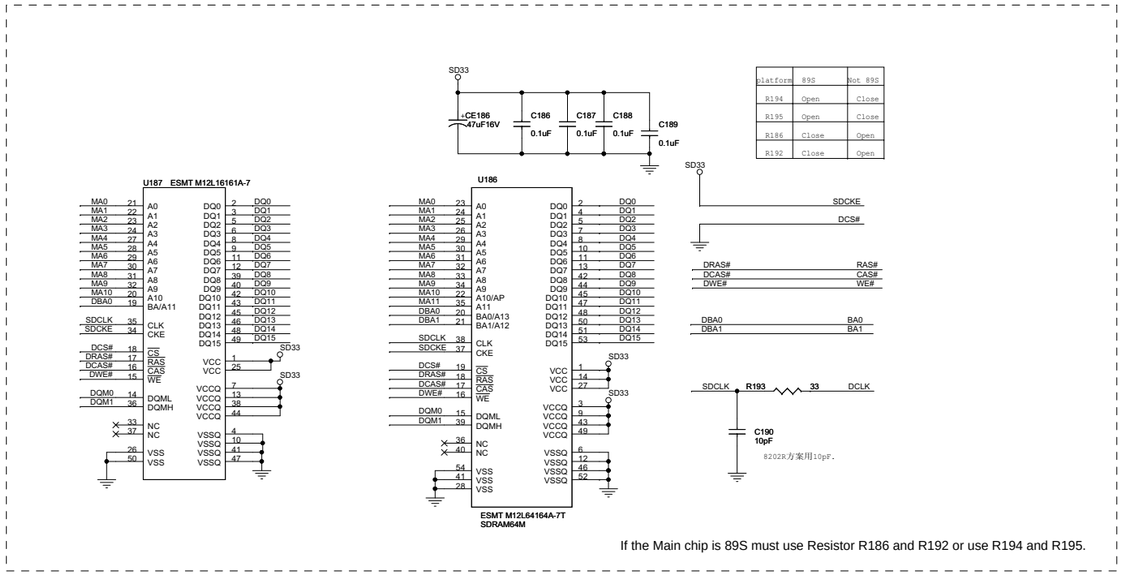




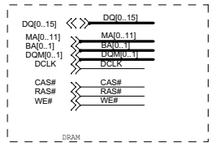


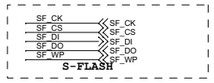
6-7

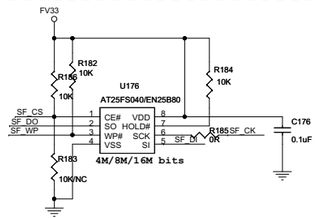
Main Board Circuit Diagram: SDRAM&FLASH



If the Main chip is 89S must use Resistor R186 and R192 or use R194 and R195.



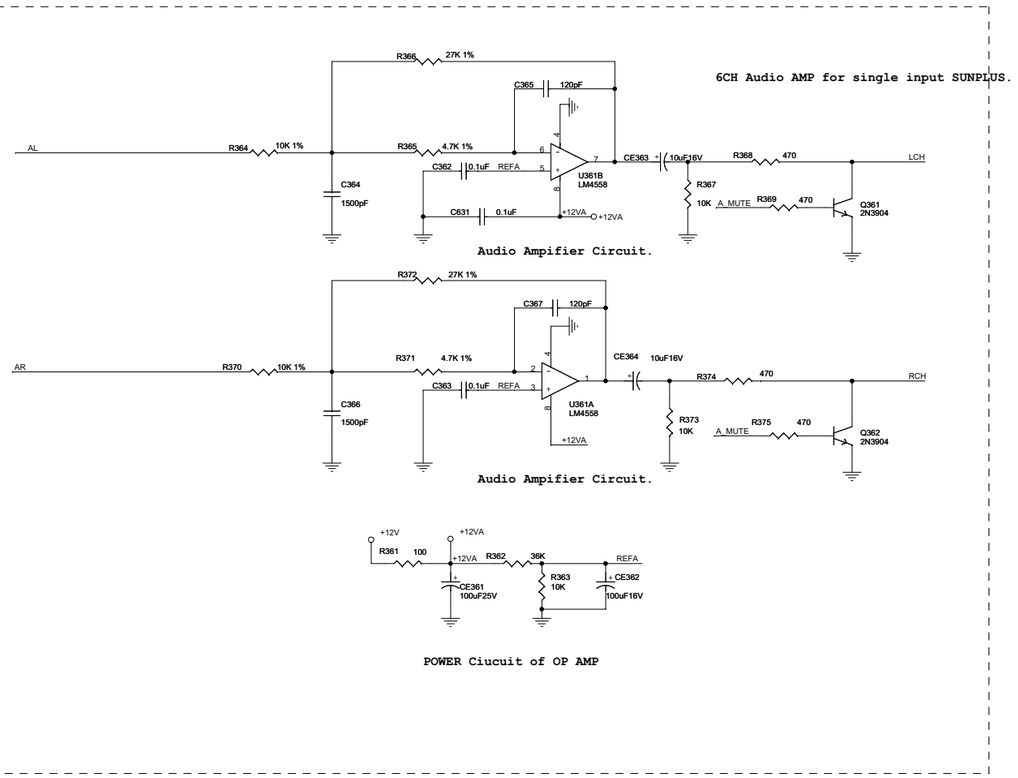


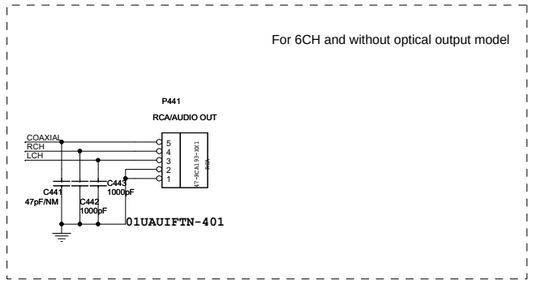


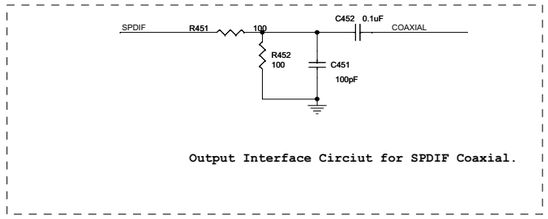
Note 2:IF use R183,Must take over R181.Default use R183(10K),and R181 Open.

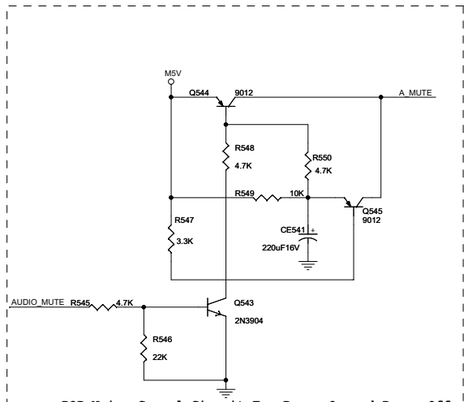
6-8

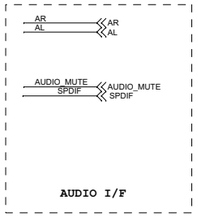
Main Board Circuit Diagram: AUDIO I/F





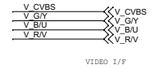


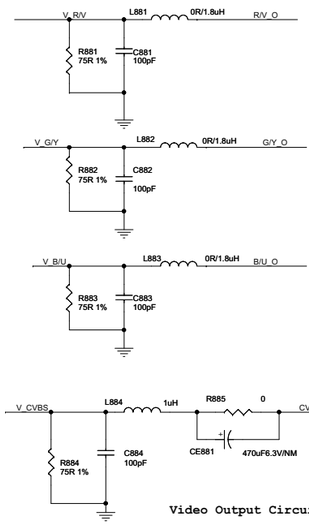




6-9

Main Board Circuit Diagram: VIDIO I/F

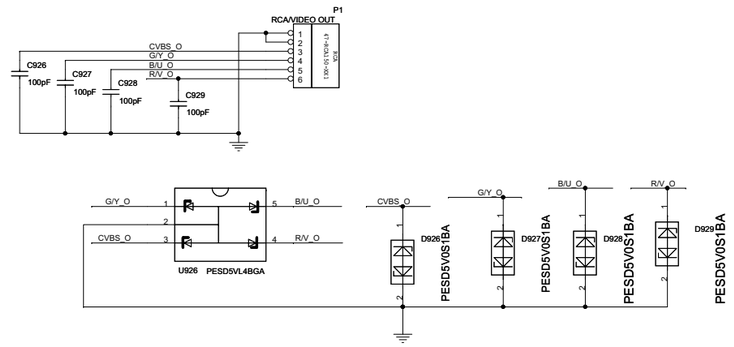




Video Output Circuit.

Note:Only CE61(470uF/6.3V) use for India stroke.unless other use R230(0 OHM)

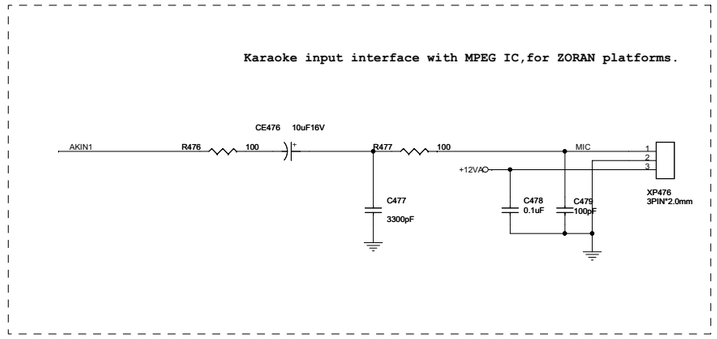
VIDEO OUTPUT TERMINAL.

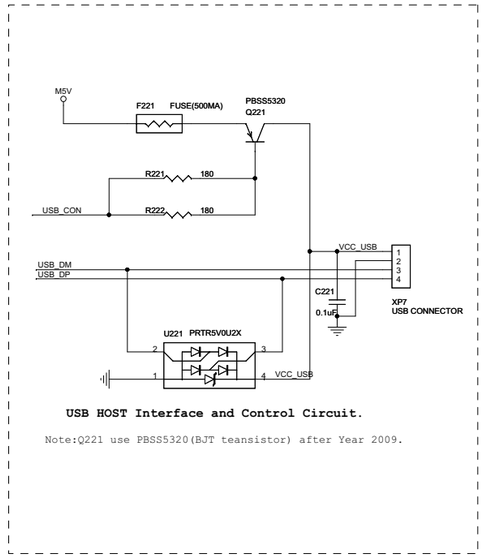


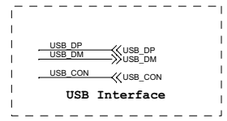
NOTE1:D926,D927,D928,D929 only for 94/55/77/78(ie.India/Latin America /Argentine/Brazil) stroke,Other Stroke use U926

6-10

Main Board Circuit Diagram: OTHER & USB & KOK

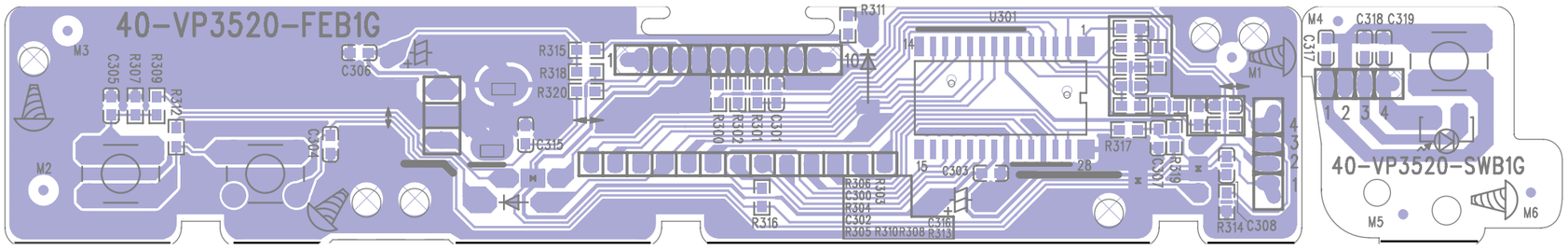




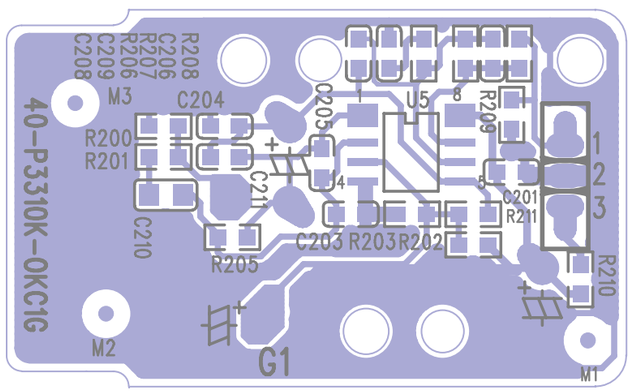


7-11

Front Board and Switch Board Print-layout (Bottom side):

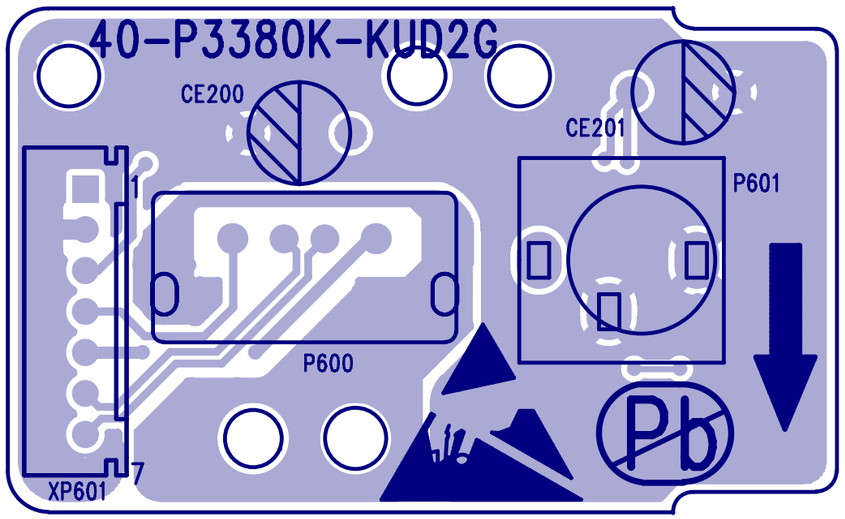


OK Board Print-layout for DVP3520K/93 (Bottom side):

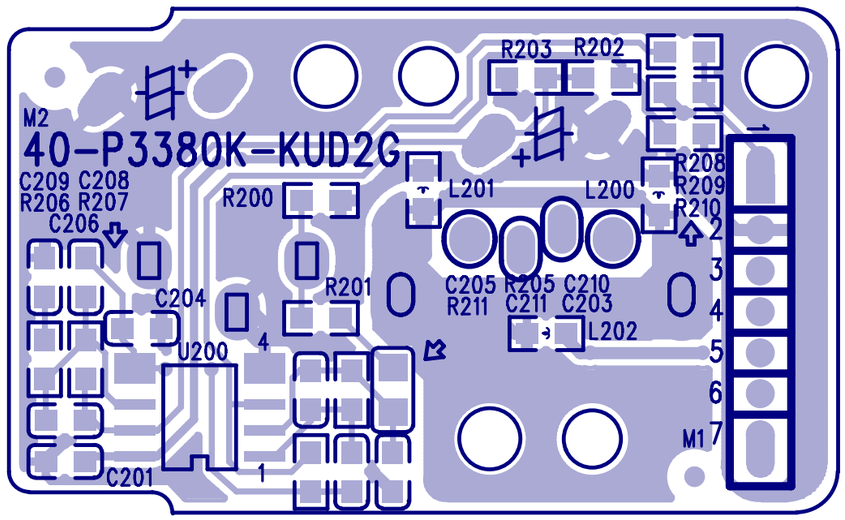


6-12

USB Board Print-layout (Top side)



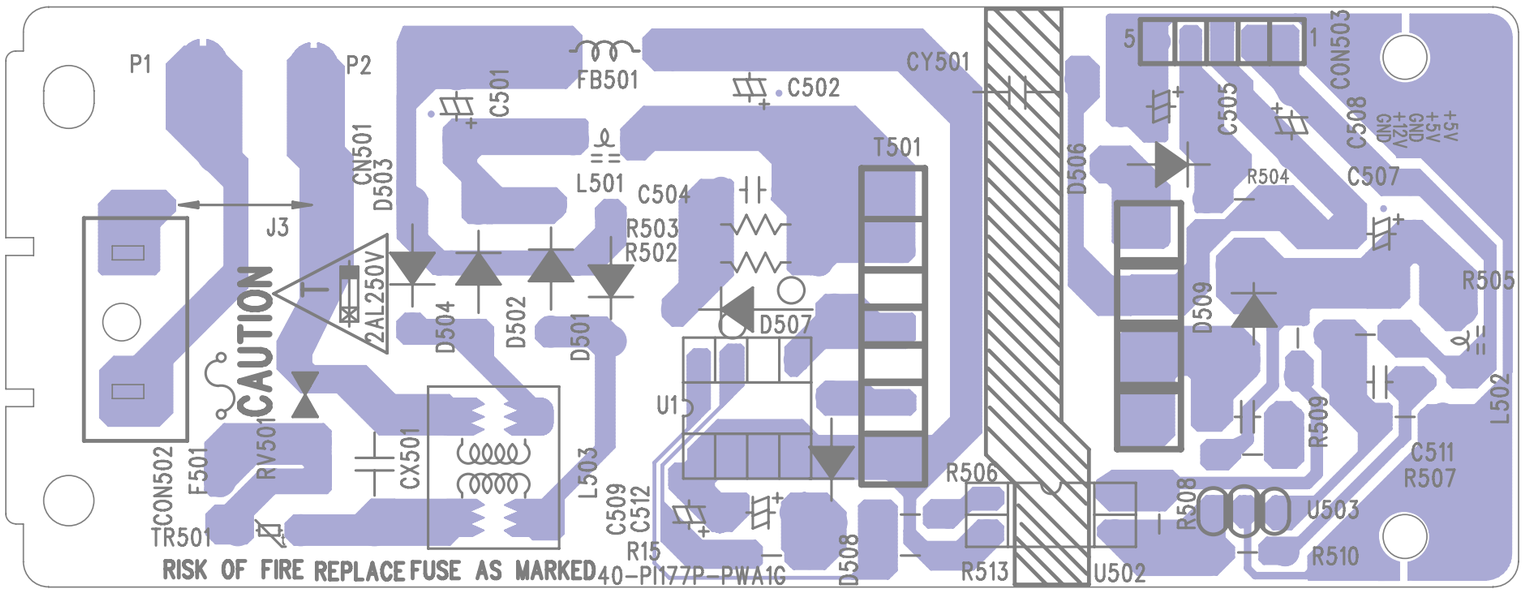
USB Board Print-layout (Bottom side):



Remark: Only for DVP3522 and has not karaoke output.

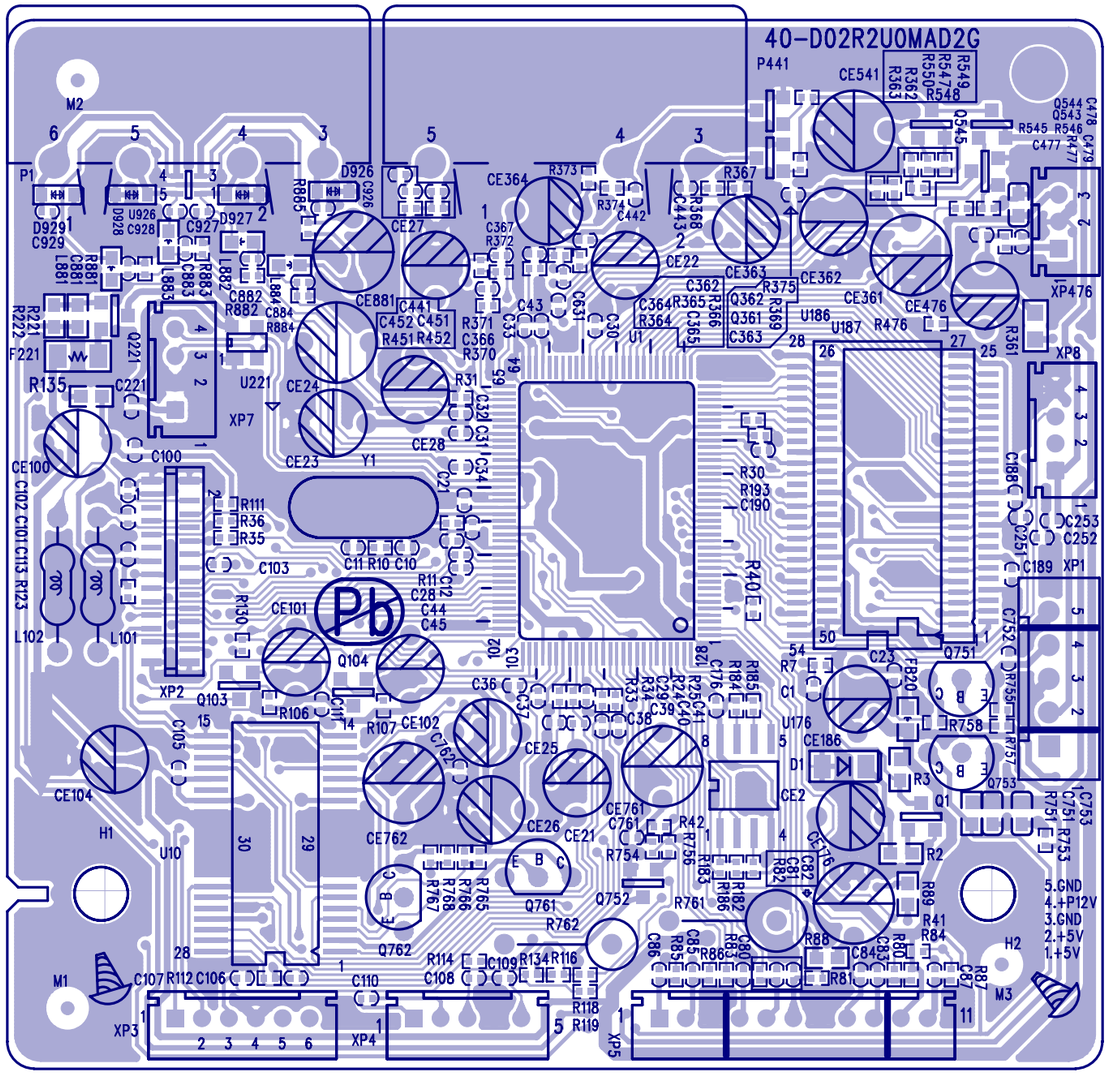
6-13

Power Board Print-layout (Bottom side):



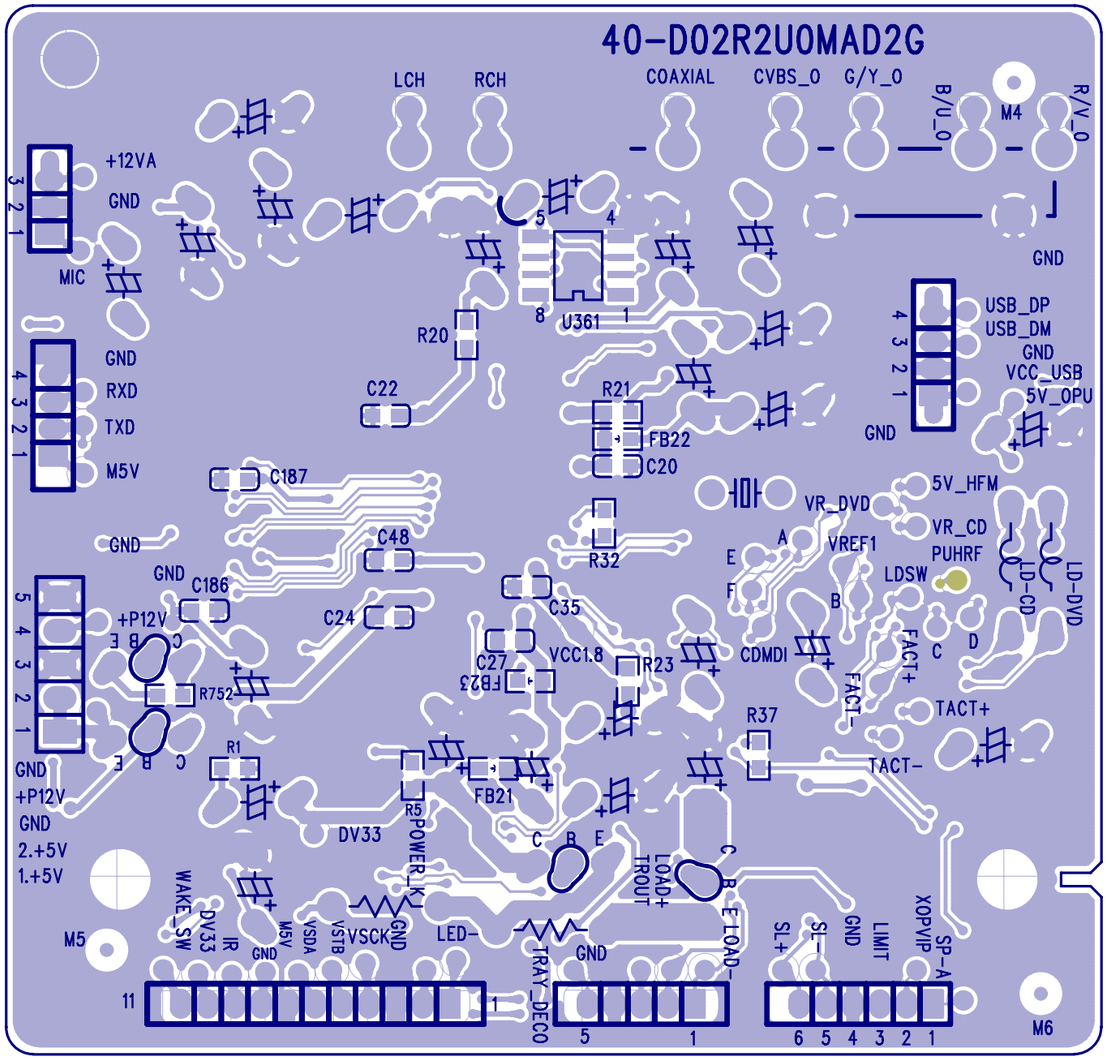
6-14

Main Board Print-layout (Top side):

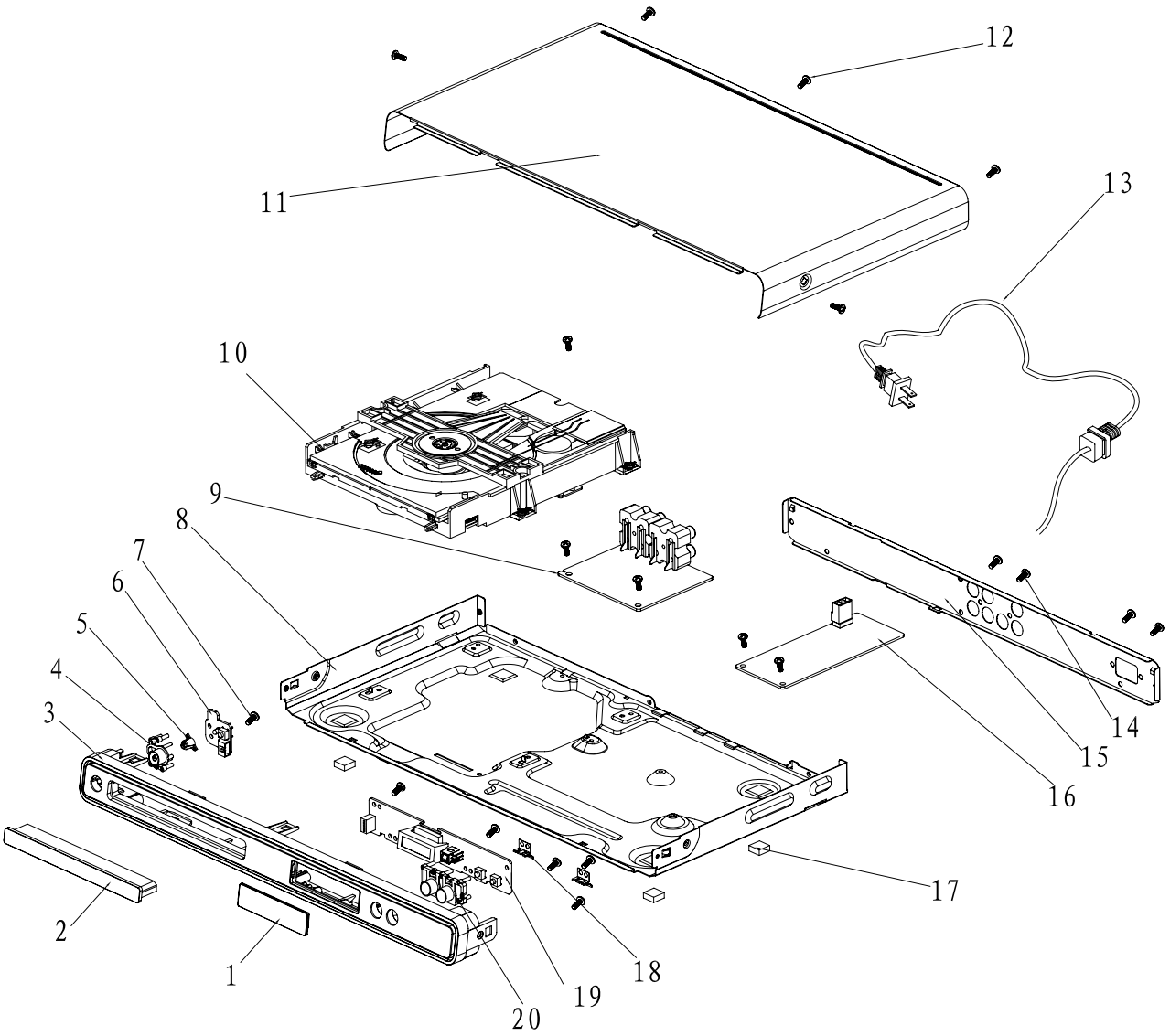


6-15

Main Board Print-layout (Bottom side):

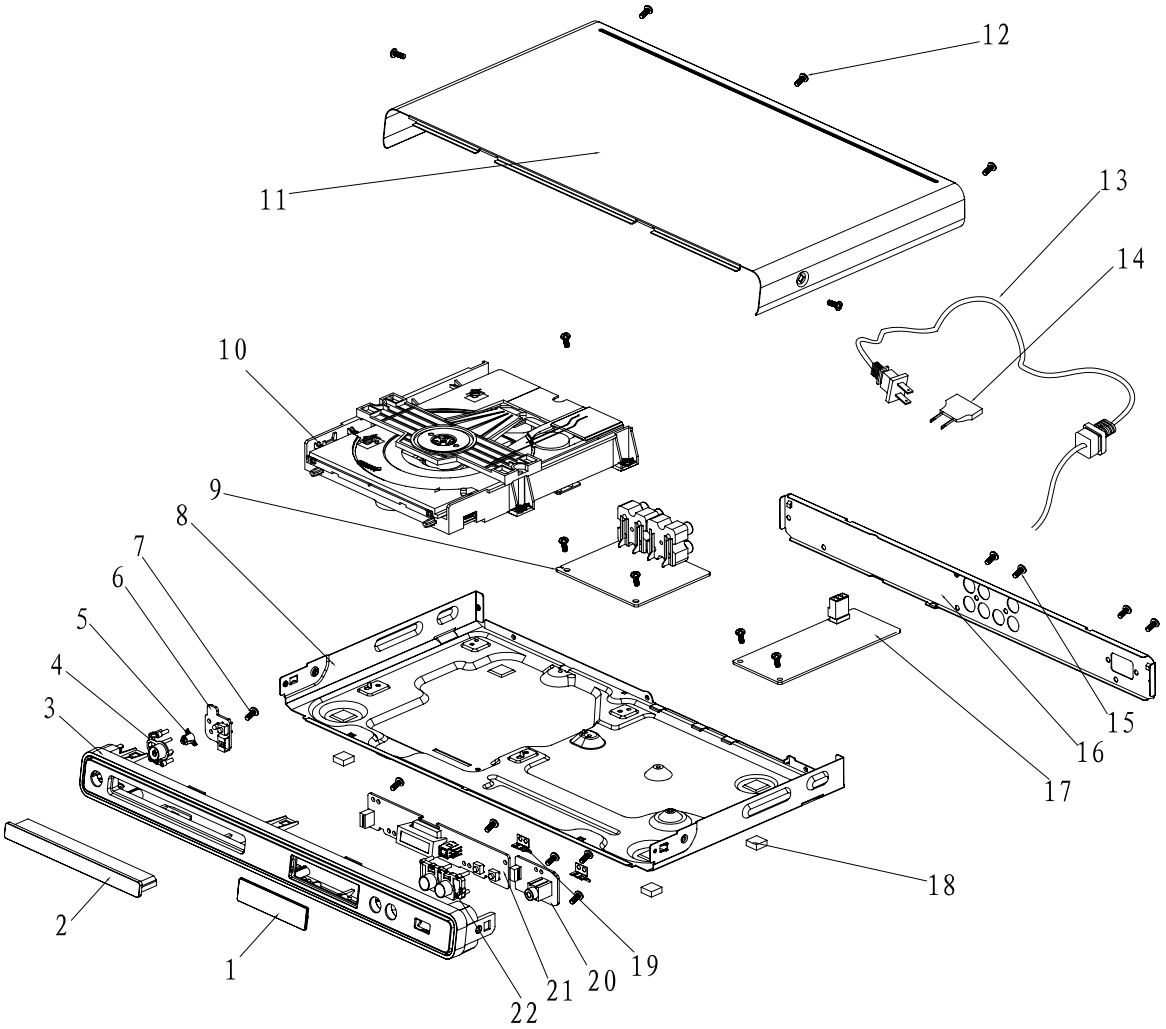


Exploded View for DVP3520/55:



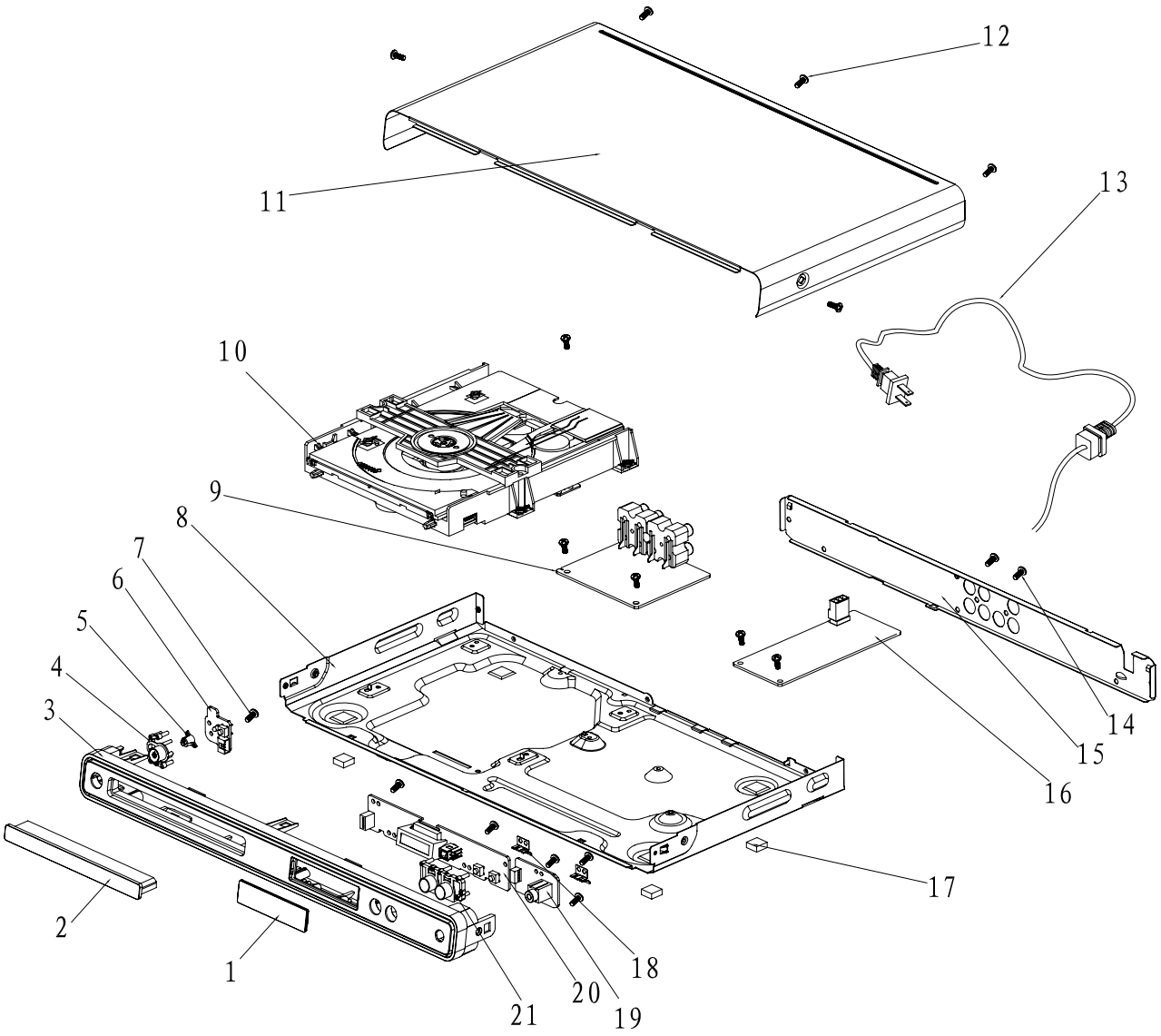
It is a general mechanical exploded view for DVP3520/55, pls refer to the model set for detailed information.
ASSY1 includes components:1.3.4.5.20

Exploded view for DVP3522/55:



It is general mechanical exploded view for DVP3522/55, pls refer to model set for detailed information.
ASSY1 includes components:1.3.4.5.22

Exploded view for DVP3520K/93:



It is general mechanical exploded view for DVP3520K/93, pls refer to model set for detailed information.
ASSY1 includes components:1.3.4.5.21

DVP3520/55 SERVICE PARTLIST

ELECTRICAL PARTLIST

No	12NC No.	Description	Q'ty
9	**996510031325**	**ASSY-MAIN BD**	**1**
⚠ **16**	**996510031326**	**ASSY-PW BD**	**1**
19	**996510031321**	**ASSY-FB BD (+SW BD)**	**1**
6	**996510031324**	**ASSY-SW BD (+FB BD)**	**1**
10	**996510031315**	**LOADER**	**1**
OPU	996510031313	IM S76RFXP2 OPU	1

ASSY-MAIN BD COMPONENT PARTLIST

NO	12NC NO.	Description	Q'ty
D1	996510014439	SMD. SWITCHING DIODE LL4148	1
D926	996510020926	IC PESD5V0S1BA	1
D927	996510020926	IC PESD5V0S1BA	1
D928	996510020926	IC PESD5V0S1BA	1
D929	996510020926	IC PESD5V0S1BA	1
L101	996500014082	COIL CHOKE 10UH +/-10%	1
L102	996500014082	COIL CHOKE 10UH +/-10%	1
Q1	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q103	996510021453	SMD. TRANSISTOR MMBT8550CLT1	1
Q104	996510021453	SMD. TRANSISTOR MMBT8550CLT1	1
Q361	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q362	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q543	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q544	996510009670	TRANSISTOR SMT 3CG9012M	1
Q545	996510009670	TRANSISTOR SMT 3CG9012M	1
Q751	996510031316	PNP TRANSISTOR 3CA8550C	1
Q752	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q761	996510031316	PNP TRANSISTOR 3CA8550C	1
Q762	996510031316	PNP TRANSISTOR 3CA8550C	1
U1	996510031314	MPEG IC SPHE8202RQ-D LQFP128	1
U10	996510009674	IC AM5888IC	1
U176	996510031293	16M FLASH 86MHZ MX25L1605DM2	1
U186	996510031282	4*16M SDRAM EM638165TS -6T	1
U361	996500032494	IC AS4558M	1
Y1	996510009675	27MCL20PF	1

ASSY-PW BD COMPONENT PARTLIST

NO	12NC NO.	Description	Q'ty
D501	996510011047	DIODE IN4007	1
D502	996510011047	DIODE IN4007	1
D503	996510011047	DIODE IN4007	1
D504	996510011047	DIODE IN4007	1
D506	996500014043	DIODE FR102 (FAST RECOVERY)	1
D507	996510011047	DIODE IN4007	1
D509	996500027866	DIODE SR360 3A/60V	1
L501	996510009942	COIL WIDTH	1
L502	996500032509	COIL SL0811-6R8K2R4	1
⚠ T501	996510031322	TRANSFORMER(BCK-03EE19)	1
U1	996510010953	IC TNY176PN	1
U502	996500027867	PHOTOCOUPLER PS2561L1-1-V(WF)	1
U503	996510010419	REG DE PRECISAO AJUSTAVEL	1
			1

ASSY-FB BD COMPONENT PARTLIST

NO	12NC NO.	Description	Q'ty
LED1	996510020917	J2808AG	1
REM301	996510020925	HM338-12 RECEIVER MOD H=12MM	1
U301	996510009665	IC ET6202 SOP-2	1

MECHANICAL PARTLIST

No	12NC No.	Description	Q'ty
11	996510031317	TOP CABINET	1
⚠ 13	996510001175	POWER CORD	1
15	996510031323	BACK PANEL	1
17	996510006463	PAD	4
2	996510031319	FRONT DOOR	1
8	996510027099	BOTTOM PLATE	1
AVCABLE	996510001106	VIDEO CABLE 1500mm	1
Assy1	996510031318	ASSY-FRONT CABINET	1
CON503	996510021451	HS 3P TJC-3Y/SCN-3Y L=80MM	1
⚠ PSOCKET	996510020885	POWER SOCKET transition	1
RC	996510020681	Remote Control	1
XP1	996510029492	4PIN CABLE	1
XP2	996510012752	24PIN HS	1
XP3	996510021448	6PIN HS	1
XP4	996510020919	5PIN CBL PH-5Y/JC20-5P L=160MM	1
XS301	996510010479	6PIN HS L=120MM	1

SCREWS LIST:

No	12NC No.	Description	Q'ty
7	—	S/T SCREW B 2.6 X 8 BF	6
12	—	S/T SCREW B3 X 6 BF	9
14	—	S/T SCREW B 3 X 7 BF	5

DVP3522/55 SERVICE PARTLIST

ELECTRICAL PARTLIST

No	12NC No.	Description	Q'ty
9	**996510031885**	**ASSY-MAIN BOARD**	**1**
⚠ **17**	**996510031883**	**ASSY-POWER BOARD**	**1**
20	**996510031876**	**ASSY-USB BOARD**	**1**
21	**996510031321**	**ASSY-FB BD (+SW BD)**	**1**
6	**996510031324**	**ASSY-SW BD (+FB BD)**	**1**
10	**996510031315**	**LOADER**	**1**
OPU	996510031313	IM S76RFXP2 OPU	1

ASSY-MAIN BD COMPONENT PARTLIST

NO	12NC NO.	Description	Q'ty
D1	996510014439	SMD. SWITCHING DIODE LL4148	1
D926	996510020926	IC PESD5V0S1BA	1
D927	996510020926	IC PESD5V0S1BA	1
D928	996510020926	IC PESD5V0S1BA	1
D929	996510020926	IC PESD5V0S1BA	1
L101	996500014082	COIL CHOKE 10UH +/-10%	1
L102	996500014082	COIL CHOKE 10UH +/-10%	1
Q1	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q103	996510021453	SMD. TRANSISTOR MMBT8550CLT1	1
Q104	996510021453	SMD. TRANSISTOR MMBT8550CLT1	1
Q221	996510022279	PNP TRANSISTOR SOT-23PBSS5320T	1
Q361	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q362	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q543	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q544	996510009670	TRANSISTOR SMT 3CG9012M	1
Q545	996510009670	TRANSISTOR SMT 3CG9012M	1
Q751	996510031316	PNP TRANSISTOR 3CA8550C	1
Q752	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q761	996510031316	PNP TRANSISTOR 3CA8550C	1
Q762	996510031316	PNP TRANSISTOR 3CA8550C	1
U1	996510031881	MPEG IC SPHE8202R-D	1
U10	996510009674	IC AM5888IC	1
U176	996510031878	IC MX25L1605DM2 16M DVP3522/55	1
U186	996510031282	4*16M SDRAM EM638165TS -6T	1
U221	996510013349	HDMI USB ESD PYOTECTION IC	1
U361	996500032494	IC AS4558M	1
Y1	996510009675	27MCL20PF	1

ASSY-PW BD COMPONENT PARTLIST

NO	12NC NO.	Description	Q'ty
D501	996510011047	DIODE IN4007	1
D502	996510011047	DIODE IN4007	1
D503	996510011047	DIODE IN4007	1
D504	996510011047	DIODE IN4007	1
D506	996500014043	DIODE FR102 (FAST RECOVERY)	1
D507	996510011047	DIODE IN4007	1
D509	996500027866	DIODE SR360 3A/60V	1
L501	996510009942	COIL WIDTH	1
L502	996500032509	COIL SL0811-6R8K2R4	1
⚠ T501	996510031322	TRANSFORMER(BCK-03EE19)	1
U1	996510010953	IC TNY176PN	1
U502	996500027867	PHOTOCOUPLER PS2561L1-1-V(WF)	1
U503	996510010419	REG DE PRECISAO AJUSTAVEL	1

ASSY-FB BD COMPONENT PARTLIST

NO	12NC NO.	Description	Q'ty
LED1	996510020917	J2808AG	1
REM301	996510020925	HM338-12 RECEIVER MOD H=12MM	1
U301	996510009665	IC ET6202 SOP-2	1

MECHANICAL PARTLIST

No	12NC No.	Description	Q'ty
11	996510031886	TOP COVER	1
⚠ 13	996510001175	POWER CORD	1
16	996510031882	BACK PLATE	1
18	996510006463	PAD	4
2	996510031879	FRONT DOOR	1
8	996510027099	BOTTOM PLATE	1
ASSY1	996510031884	ASSY-FRONT DOOR	1
AV	996510001106	VIDEO CABLE 1500mm	1
CON503	996510010478	TJC3-5Y/SCN-5P L=80MM	1
PSOCKET	996510020885	POWER SOCKET transition	1
RC	996510020682	Remote Control	1
XP2	996510012752	24PIN HS	1
XP3	996510021448	6PIN HS	1
XP4	996510020919	5PIN CBL PH-5Y/JC20-5P L=160MM	1
XP601	996510031877	USB CABLE 4PIN/2.0MM 220MM	1
XS301	996510010479	6PIN HS L=120MM	1

SCREWS LIST:

No	12NC No.	Description	Q'ty
7	—	S/T SCREW B 2.6 X 8 BF	6
12	—	S/T SCREW B3 X 6 BF	9
14	—	S/T SCREW B 3 X 7 BF	5

DVP3520K/93 SERVICE PARTLIST

ELECTRICAL PARTLIST

No	12NC No.	Description	Q'ty
9	**996510034192**	**ASSY-MAIN BOARD**	**1**
⚠ **16**	**996510034193**	**ASSY-POWER BOARD**	**1**
19	**996510034184**	**ASSY-OK+USB BOARD**	**1**
20	**996510031321**	**ASSY-FB BD (+SW BD)**	**1**
6	**996510031324**	**ASSY-SW BD (+FB BD)**	**1**
10	**996510031315**	**LOADER**	**1**
OPU	996510031313	IM S76RFXP2 OPU	1

ASSY-MAIN BD COMPONENT PARTLIST

NO	12NC NO.	Description	Q'ty
D1	996510014439	SMD. SWITCHING DIODE LL4148	1
L101	996500014082	COIL CHOKE 10UH +/-10%	1
L102	996500014082	COIL CHOKE 10UH +/-10%	1
Q1	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q103	996510021453	SMD. TRANSISTOR MMBT8550CLT1	1
Q104	996510021453	SMD. TRANSISTOR MMBT8550CLT1	1
Q361	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q362	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q543	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q544	996510009670	TRANSISTOR SMT 3CG9012M	1
Q545	996510009670	TRANSISTOR SMT 3CG9012M	1
Q751	996510031316	PNP TRANSISTOR 3CA8550C	1
Q752	996510009669	SMD.TRANSISTOR MMBT3904LT1 NPN	1
Q761	996510031316	PNP TRANSISTOR 3CA8550C	1
Q762	996510031316	PNP TRANSISTOR 3CA8550C	1
U1	996510031314	MPEG IC SPHE8202RQ-D LQFP128	1
U10	996510009674	IC AM5888IC	1
U176	996510034187	IC 16M SPI FLASH DVP3520K/93	1
U186	996510021455	64M SDRAM -6NS TSP54	1
U361	996500032494	IC	1
U926	996510021013	IC PESD5VL4UG	1
Y1	996510009675	27MCL20PF	1

ASSY-PW BD COMPONENT PARTLIST

NO	12NC NO.	Description	Q'ty
D501	996510011047	DIODE IN4007	1
D502	996510011047	DIODE IN4007	1
D503	996510011047	DIODE IN4007	1
D504	996510011047	DIODE IN4007	1
D506	996500014043	DIODE FR102 (FAST RECOVERY)	1
D507	996510011047	DIODE IN4007	1
D509	996500027866	DIODE SR360 3A/60V	1
L501	996510009942	COIL WIDTH	1
L502	996500032509	COIL SL0811-6R8K2R4	1
⚠ T501	996510031322	TRANSFORMER(BCK-03EE19)	1
U1	996510010953	IC TNY176PN	1
U502	996500027867	PHOTOCOUPLER PS2561L1-1-V(WF)	1
U503	996510010419	REG DE PRECISAO AJUSTAVEL	1

ASSY-OK+USB BD COMPONENT PARTLIST

NO	12NC NO.	Description	Q'ty
U5	996500032494	IC AS4558M	1

ASSY-FB BD COMPONENT PARTLIST

NO	12NC NO.	Description	Q'ty
LED1	996510020917	J2808AG	1
REM301	996510020925	HM338-12 RECEIVER MOD H=12MM	1
U301	996510009665	IC ET6202 SOP-2	1

MECHANICAL PARTLIST

No	12NC No.	Description	Q'ty
11	996510034185	TOP CABINET	1
⚠ 13	996510021454	3C PLUG POWER CORD	1
15	996510034191	BACK PANEL	1
17	996510006463	PAD	4
2	996510034194	FRONT DOOR	1
8	996510027099	BOTTOM PLATE	1
ADDIFU	996510034195	IFU ADDENDUM PAGE	1
AV	996510001106	VIDEO CABLE 1500mm	1
Assy1	996510034186	ASSY- FRONT DOOR	1
CON503	996510021451	HS 3P TJC-3Y/SCN-3Y L=80MM	1
DBOX	996510034188	DISPLAY BOX	1
LBUFFER	996510031349	RIGHT PAPER PAD	1
PBAG	996510018311	ACCESSORY BAG	1
QSG	996510034189	QSG	1
RBUFFER	996510031356	LEFT PAPER PAD	1
RC	996510021467	REMOTE CONTROL	1
SGUAE	996500033761	SERVICE GUARANTEE	1
SLINE	996500042132	SERVICE HOT LINE	1
WCARD	996510019880	Worldwideguarantcard	1
	996510012752	HS	1
XP3	996510020921	6PIN CBL PH-6Y*2 20080#28	1
XP4	996510020919	5PIN CBL PH-5Y/JC20-5P L=160MM	1
XP601	996510012678	3PIN CABLE WITCH SHIELD	1
XS301	996510010479	6PIN HS L=120MM	1

SCREWS LIST:

No	12NC No.	Description	Q'ty
7	—	S/T SCREW B 2.6 X 8 BF	6
12	—	S/T SCREW B3 X 6 BF	9
14	—	S/T SCREW B 3 X 7 BF	5

REVISION LIST

Version 1.0

* Initial release for DVP3520/55

Version 1.1

* Adding DVP3522/55

Version 1.2

* Adding DVP3520K/93